EDITORIAL BOARD
International Journal of Case Reports and Images (IJCRI)

Dr. Achuta Kumar Guddati  USA  Dr. Makoto Adachi  USA
Dr. Aditya Gupta  USA  Dr. Mehmet Uludag  Turkey
Dr. Adriana Handra-Luca  France  Dr. Mohamed Radhi  USA
Dr. Ali Soltani  USA  Dr. Mohammad Al-Qudah  Jordan
Dr. Antonio La Cava  USA  Dr. Morikuni Tobita  USA
Dr. Asher Bashiri  Israel  Dr. Naila Khalil  USA
Dr. Aziz Mustafa  Kosovo  Dr. Natalya Semiletova  USA
Dr. Christopher CK Ho  Malasiya  Dr. Oner Dikensoy  Turkey
Dr. Claudio Feliciani  Italy  Dr. Ozlem Guneysel  Turkey
Dr. Daniela Cabibi  Italy  Dr. Paolo Cardelli  Italy
Dr. Deepa Rastogi  USA  Dr. Paul Rea  UK
Dr. Deepak Sharma  USA  Dr. Pengcheng Luo  China
Dr. Emre Karasahin  Turkey  Dr. Piray Lal Kariholu  India
Dr. Federico Bizzarri  Italy  Dr. Piraye Kervancioglu  Turkey
Dr. Gavin A. Falk  USA  Dr. Radhika Muzumdar  USA
Dr. Gerardo Gómez-Moreno  Spain  Dr. Rajesh Pareta  USA
Dr. Gil Atzmon  USA  Dr. Ranji Cui  China
Dr. Giovanni Leuzzi  Italy  Dr. Ricardo Correa  USA
Dr. Giovanni Tuccari  Italy  Dr. Ricardo Macarenco  Brazil
Dr. Gokulakkrishna Subhas  USA  Dr. Sanju George  UK
Dr. Guo Wei  USA  Dr. Saurabh Khakharia  USA
Dr. Hajimi Orita  Japan  Dr. Sergio Gabriel Susmallian  Israel
Dr. Ho-Sheng Lin  USA  Dr. Shashideep Singhal  USA
Dr. Imtiaz Wani  India  Dr. Shervin Assari  USA
Dr. James Cheng-Yi Lin  Taiwan  Dr. Shilpa Jain  USA
Dr. Jonathan D. Solomon  USA  Dr. Siddharth Mathur  USA
Dr. Kyuzi Kamoi  Japan  Dr. Sirinrath Sirivisoot  USA
Dr. Luca Bertolaccini  Italy  Dr. Slobodan Marinkovic  Slovenia

Contact Details:
Editorial Office
Email: meditor@ijcasereportsandimages.com
Fax: +1-773-409-5040
Website: www.ijcasereportsandimages.com

Guidelines for Authors
Full instructions are available online at:
www.ijcasereportsandimages.com/submit/instructions
-for-authors

Manuscript submission:
www.ijcasereportsandimages.com/submit

Disclaimer
Neither International Journal of Case Reports and Images (IJCRI) nor its editors, publishers, owners or anyone else involved in creating, producing or delivering International Journal of Case Reports and Images (IJCRI) or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in International Journal of Case Reports and Images (IJCRI), nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of International Journal of Case Reports and Images (IJCRI) or its contents. While the advice and information in this journal are believed to be true and accurate on the date of its publication, neither the editors, publisher, owners nor the authors can accept any legal responsibility for any errors or omissions that may be made or for the results obtained from the use of such material. The editors, publisher or owners, make no warranty, express or implied, with respect to the material contained herein. (http://www.ijcasereportsandimages.com/disclaimer.php)
EDITORIAL BOARD
International Journal of Case Reports and Images (IJCRI)

Dr. Stefan Hagmann  USA
Dr. Stefano Romagnoli  Italy
Dr. Tapas Saha  USA
Dr. Teguh Haryo Sasonko  Malaysia
Dr. Tomoyuki Yano  Japan
Dr. Tun Hing Lui  China
Dr. Yulin Li  China
Dr. Yupeng Chen  USA

Contact Details:
Editorial Office
Email: meditor@ijcasereportsandimages.com
Fax: +1-773-409-5040
Website: www.ijcasereportsandimages.com

Guidelines for Authors
Full instructions are available online at:
www.ijcasereportsandimages.com/submit/instructions
-for-authors
Manuscript submission:
www.ijcasereportsandimages.com/submit

Disclaimer
Neither International Journal of Case Reports and Images (IJCRI) nor its editors, publishers, owners or anyone else involved in creating, producing or delivering International Journal of Case Reports and Images (IJCRI) or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in International Journal of Case Reports and Images (IJCRI), nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of International Journal of Case Reports and Images (IJCRI) or its contents. While the advice and information in this journal are believed to be true and accurate on the date of its publication, neither the editors, publisher, owners nor the authors can accept any legal responsibility for any errors or omissions that may be made or for the results obtained from the use of such material. The editors, publisher or owners, make no warranty, express or implied, with respect to the material contained herein. (http://www.ijcasereportsandimages.com/disclaimer.php)
Contents

Cover Image
Figure 3: Serial sectioning of the spleen specimen demonstrated the typical multiple blood lakes in the parenchyma. This case demonstrated that peliosis can be one of rare cause of spontaneous hemoperitoneum.

Case Series
190 Fatal anaphylaxis to intravenous co-amoxiclav: A case series
Niall P Conlon, J David M Edgar

194 A novel laparoscopic technique for drainage of hydatid cyst in posterior segment of liver
Manash Ranjan Sahoo, Anil Kumar T, Manoj Gowda

199 Basaloid squamous cell carcinoma of the oral cavity: A case series
Kenji Yamagata, Rei Karube, Toru Yanagawa, Wolfgang Zemann, Philipp Metzler, Kojiro Onizawa, Hiroki Bukawa

Case Reports
208 Coccidioidomycosis and erythema nodosum in pregnancy
Yousef Usta, Wesley Shealey

212 Severe cholestatic jaundice secondary to hyperthyroidism
Yousef Usta, Julia Massaad, Samir Parekh, Laura Knecht

216 Peliosis hepatis and splenosis: An unusual cause of spontaneous hemoperitoneum
Kevin Mo, Daniel Tong, Ronnie Poon

220 Persistent molar pregnancy in an ectopic tubal pregnancy treated with laparoscopic surgery: A case report
Anthony Richards, Kirsten Black, Selvan Pather

224 Benign fibrous histiocytoma of bone: A case report
Nagarekha Kulkarni

Vol. 4, No. 4 (April 2013)

228 Large metal retractor left in the abdominal cavity for 27 years after colorectal surgery
Alexandar Alexandrov, Lazar Jelev, Dimitar Nikolov, Lina Malinova, Stanislav Hristov

232 Otogenic tetanus: A challenge for anesthetic management
Jyoti V Kulkarni, Anil Shrinivas Joshi, Rashmi Bengali, Suhas Jewalikar

236 Ambiguous genitalia secondary to a Bartholin’s cyst in a virilized newborn girl with maternal hyperandrogenemia
Swati Dave-Sharma, Christian Castillo, Yolanda Cosme, Alberto Mendoza, Evelyn Erickson

Clinical Images
184 Unusual serpentine supraventricular hyperpigmentation during chemotherapy treatment
Houda Mouzount, Sihame Lkhouyaali, Saber Boutayeb, Hassan Ennkhali
Fatal anaphylaxis to intravenous co-amoxiclav: A case series

Niall P Conlon, J David M Edgar

ABSTRACT

Introduction: Fatal anaphylaxis to co-amoxiclav is rarely reported. We report three fatalities directly attributable to intravenous co-amoxiclav administration. Case Report: Three patients with no prior history of drug allergy developed fatal anaphylaxis following intravenous administration of co-amoxiclav. Notably two of the three cases had been administered co-amoxiclav in the weeks preceding the fatal event. Each patient also had a factor associated with increased severity of anaphylaxis. Despite timely, appropriate and aggressive management of the anaphylactic reactions each case had a fatal outcome. Conclusion: Fatal anaphylaxis to co-amoxiclav is uncommon. These cases are typical of the rapid symptom onset of type I hypersensitivity to parenteral medication. Each incident occurred within a four-year time frame in a relatively small geographic area. This is out of proportion to 10 other fatalities related to amoxicillin containing medications occurring in the UK over a 47-year period. The clinical diagnoses were supported by elevations in serum mast cell tryptase. Assessment of drug allergy commonly relies on clinical history supported by skin and intradermal testing. Risk assessment algorithms incorporating such testing techniques are unlikely to have altered outcome in these cases. These cases indicate that anaphylaxis to co-amoxiclav may have a catastrophic outcome despite immediate management. Such cases may be under reported and more prevalent than previously indicated. All staff administering parenteral co-amoxiclav should be aware of the risk of anaphylaxis even in patients with a prior history of tolerance of the drug.

Keywords: Anaphylaxis, Drug allergy, Co-amoxiclav, Mast cell tryptase


INTRODUCTION

Anaphylaxis is defined as a serious allergic reaction that is rapid in onset and has the potential to cause fatality [1]. In the health care setting, medication related anaphylaxis is an important complication of pharmacological therapy. Antibiotics, including β-lactams, are an important cause of in-hospital anaphylaxis [2]. Deaths from such reactions are considered rare [3]. However, fatal anaphylaxis may be under reported due to underdiagnosis by health care
professionals, insensitive and non specific laboratory
tests and the absence of clear postmortem findings [4].
We report three cases of fatal anaphylaxis related to the
administration of intravenous (IV) co-amoxiclav. These
cases highlight the unpredictable nature of anaphylaxis
related to parenteral co-amoxiclav administration.

CASE REPORT

Case 1: A 52-year-old female, with a background of
rheumatoid arthritis and mild asthma, but no history of
drug allergy, was admitted to hospital with severe lower
abdominal pain. She had been discharged from hospital
13 days before with following treatment with IV
metronidazole and IV co-amoxiclav for a sigmoid
diverticular abscess. On second admission a computed
tomography (CT) scan showed an inflammatory
diverticular mass in the right iliac fossa. Treatment with
ceftaxime and metronidazole was commenced with a
good therapeutic response. On day 5 of IV antibiotic
therapy the patient was erroneously administered 1.2 g
co-amoxiclav intravenously. During slow IV
administration of the co-amoxiclav the patient
complained of a strange taste in her mouth.
Administration was discontinued before completion of
the dose. However, she rapidly developed dyspnea,
cyanosis and collapse prompting the call of the cardiac
arrest team. Despite full anaphylaxis management and
resuscitative efforts, including endotracheal intubation,
the patient was declared dead 30 minutes after initial
collapse. Postmortem examination confirmed a
retrocecal diverticular abscess. Serum mast cell tryptase
taken immediately postmortem was >200 ng/mL
(normal range <14 ng/mL).

Case 2: A 27-year-old female, with no significant
past medical history, was admitted for induction of
 labor in her first pregnancy. Due to failure of labor to
progress satisfactorily, maternal fatigue and evidence of
fetal distress cesarean section was planned. The patient
developed a pyrexia of 38°C and IV co-amoxiclav 1.2 g
was prescribed preoperatively. Prior to commencement of
IV medication the patient confirmed she had no
history of drug allergy and had previously tolerated
penicillins. During slow IV administration of
co-amoxiclav the patient complained of a bad taste in her
mouth and administration was discontinued. Despite
this, symptoms rapidly progressed to include retching,
agitation, chest tightness and cyanosis before collapse
and cardiac arrest. A consultant anesthetist was in
attendance and anaphylaxis management and cardiac
resuscitation was commenced immediately. The patient
was transferred to theatre and the baby delivered by
emergency cesarean section within 15 minutes of initial
collapse. The infant showed no signs of life. Exhaustive
resuscitative efforts continued and the patient was
transferred to the nearest intensive care unit. Despite
intensive management she developed left ventricular
dysfunction, severe coagulopathy, liver failure and
metabolic acidosis. She was declared dead 41 hours
after her initial collapse. Serum mast cell tryptase taken
6 hours after the initial reaction was 84.4 ng/mL
(normal range <14 ng/mL).

Case 3: A nine-year-old girl, with a history of atopy
including asthma, eczema and food allergy, was
admitted to hospital with an infective exacerbation of
asthma. She had a history of difficult to manage asthma
requiring multiple hospital admissions. During previous
admissions she had received IV antibiotics, including IV
c-co-amoxiclav, uneventfully. She had no history of drug
allergy but did have peanut allergy. As a result, she and
her family had been educated in the symptoms of severe
allergic reactions and carried rescue medications
including oral antihistamines and epinephrine
autoinjectors. On admission, she was tachypnoeic with
widespread ronchi. Oxygen saturation was 90% on room
air. Oxygen, nebulised β agonists and IV co-amoxiclav
(600 mg tds). Immediately after administration of IV co-
amoxiclav the child became increasingly distressed.
Administration of the dose was completed. Her distress
increased rapidly, despite ongoing asthma management,
including nebulised epinephrine and salbutamol.
Oxygen saturations fell to 58% on 100% oxygen. She
became deeply cyanosed and collapsed. Full
resuscitative efforts were carried out by the cardiac
arrest team, but despite this she was declared dead 2
hours and 15 minutes after the administration of co-
amoxiclav. Serum mast cell tryptase was taken at
postmortem examination 2 days after death and was
22.4 ng/mL (normal range <14 ng/mL).

DISCUSSION

These cases are presented as confirmed fatal
anaphylactic reactions precipitated by the
administration of co-amoxiclav; a compound
preparation comprising amoxicillin and clavulanic acid.
This series highlights a number of important features
related to the onset and clinical features of allergy to IV
co-amoxiclav, the use of mast cell tryptase as a
supportive diagnostic test and the prevalence of drug
allergy. The absence of a prior history of drug allergy in
all three cases is a notable feature.

The diagnoses in these cases are based on the
development of the life-threatening symptoms of
anaphylaxis during IV administration of co-amoxiclav.
The immediate onset of symptoms is typical of an IgE
mediated type I hypersensitivity reaction to a drug [5].
In each case, there was also the supporting evidence of a
raised mast cell tryptase. All three patients developed
symptoms rapidly during IV administration of the drug.
In Cases 1 and 2, where slow administration of
c-co-amoxiclav is clearly documented, administration of
the dose was stopped as patients complained of an unusual
taste in their mouths. This did not prevent the fatal
reaction from occurring. In Case 3, the speed of
administration is less certain. Onset of symptoms was at
completion of the dose and was notable for the presence
of a ‘sense of impending doom’, characteristic of
anaphylactic reactions [6]. In each case, acute
respiratory failure was the dominant feature. All three
cases occurred in a hospital setting where expert medical help was immediately available, yet despite exhaustive resuscitative efforts all three patients died. Each patient had a co-factor associated with increased severity of amplification of the reaction; in Case 1 infection, Case 2 pregnancy and Case 3 asthma. These observations emphasize the fact that administration of an intravenous drug in a hospital setting is no guarantee against fatal anaphylactic reactions especially, when potentially exacerbating factors are present.

All three cases presented here occurred in the north of Ireland (Case 2 in Northern Ireland, Case 1 in the Republic of Ireland) over a four year period. In Northern Ireland such reactions are reported via the United Kingdom’s Yellow Card System (www.mhra.gov.uk). Their data on amoxicillin, which includes preparations with multiple active ingredients such as co-amoxiclav and Heliclear, indicates that over a 47-year period there were 289 anaphylactic reactions to these drugs. There were only 12 fatalities, 2 of which are presented here. Case 1 occurred in the Republic of Ireland and was therefore not reported via this system. The occurrence of three fatal reactions in a small geographical area, with a relatively small population, is out of proportion to 10 other reported cases in the UK over an extended time frame. The reasons for this are unclear but could include under reporting of fatal allergic reactions, a misclassification of such reactions as asthma deaths or a recent increase in the incidence of such reactions.

Serum mast cell tryptase (sMCT), a marker of mast cell degranulation was elevated in each case, supporting a diagnosis of anaphylaxis [4]. sMCT levels are raised in many, but not all cases, of anaphylaxis related to intravenous medications [7]. Peak sMCT levels occur 1 hour after a reaction and its circulating half life is approximately 2 hours, with levels expected to be normal 24 hours after an allergic reaction. Measurement of sMCT levels is recommended during evaluations of suspected anaphylactic reactions. Although it is notably seldom elevated in food related anaphylaxis [8]. Postmortem sMCT, ideally collected from femoral vessels can be useful in the diagnosis of fatal anaphylaxis [9]. The sMCT is relatively stable in postmortem samples therefore measurement at autopsy may be of value. This information is useful in interpreting the sMCT levels reported in these cases. In Case 1 the tryptase level taken around the time of death was > 200 ng/mL and is reflective of total serum tryptase levels during the acute reaction. In Case 2 sMCT was 84.4 ng/mL 6.5 hours after the reaction. Based on a two-hour half-life, levels may have been >500 ng/mL in the immediate aftermath of the acute reaction. In Case 3 sMCT measurement was only carried out two days postmortem and was only slightly elevated at 22.4 ng/mL. The interpretation of such a value is complex, as recent data suggests that slight elevations in postmortem sMCT can occur especially >24 hours after death [9]. Despite this, elevations in sMCT levels, especially >45 ng/mL, are supportive of a diagnosis of anaphylaxis [9]. However, sMCT is not always elevated in anaphylaxis and fatal reactions to intravenous antibiotics have been associated with only mildly elevated sMCT levels. Measurement of serum mast cell tryptase in the aftermath of anaphylaxis is useful to support the clinical diagnosis.

One of the most striking features of these cases is the absence of a prior history of drug allergy. Indeed, in two cases co-amoxiclav had been administered in preceding weeks without adverse effect. It is routine medical practice to enquire about drug allergies prior to the prescription of antibiotics. It is also recognized that such histories may be unreliable especially as patient reported penicillin allergy often does not reflect the presence or history of allergic sensitization [10]. This has led to the development of algorithms for assessment of drug allergy that can include a combination of clinical history and skin/blood testing for sensitization [2, 10, 11]. Whilst such algorithms may be effective in risk assessing those patients with a history of suspected drug allergy, these cases highlight that a lack of history of a reaction, or indeed recent safe administration of the same medication is no guarantee against subsequent fatal anaphylaxis. Such algorithms are unlikely to have prevented administration of co-amoxiclav or altered outcome in these cases.

CONCLUSION

These cases illustrate that anyone administering co-amoxiclav and other IV antibiotics should be aware of the risk of anaphylaxis, even in the absence of a history of prior reactions. They also demonstrate the catastrophic consequences of anaphylaxis to co-amoxiclav, with negative outcomes occurring even in the presence of timely intervention. Further investigation of the prevalence of medication related anaphylaxis fatalities and advances in laboratory methods to aid the clinical diagnosis of such events are required.

*******

Author Contributions
Niall P Conlon – Conception and design of article, Drafting of article, Final approval of the version to be published
J David M Edgar – Acquisition of data, Analysis and interpretation of data, Critical revision of article, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Niall P Conlon et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and
reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.jcasereportsandimages.com/copyright-policy.php for more information).

REFERENCES
A novel laparoscopic technique for drainage of hydatid cyst in posterior segment of liver

Manash Ranjan Sahoo, Anil Kumar T, Manoj Gowda

ABSTRACT

Introduction: Although several surgeries have proven to be effective for hydatid cyst of liver, but laparoscopic surgery has its own stand. We report here a novel laparoscopic technique for drainage of hydatid cyst in posterior segment of liver in a series of four patients who had two hydatid cysts in same lobe of the liver. Case Series: Four patients who presented with right upper abdominal pain was investigated with ultrasound and computed tomography scan which revealed two hydatid cyst in same right lobe of liver with one of the cyst in posterior segment. On the operating table laparoscopically first cyst was drained with Palanivelu's hydatid system and irrigated with chlorexidine solution. Through this first cyst second cyst in the posterior segment was punctured, drained and irrigated. Postoperative period was uneventful. Conclusion: This novel technique of approaching second cyst through first cyst is safe, feasible, very effective for cysts in the posterior segments and yield good results and can also approach a third cyst, if it is near to the first cyst. If there are three or more cysts, we can reduce multiple deroofing by approaching the other nearer cysts through already deroofed cyst.

Keywords: Hydatid cyst, Posterior segment, Palanivelu’s hydatid system

**********


**********


INTRODUCTION

Hydatid cyst is a parasitic disease caused by the tapeworm Echinococcus granulosus or Ech. Alveolaris. Hydatid disease is endemic mainly in the Mediterranean countries, the Middle East, South America, India, northern China [1]. However, disease may be encountered worldwide sporadically because of increased travel and immigration [2, 3]. Hydatid disease is a rare entity primarily affecting the population of developing countries. In human most hydatid cyst occur in the liver and 75% of these are single cyst. Other common organs included are lung, spleen and kidney [4]. Treatment of echinococcal infestation has a major impact on the health care economy in an endemic region [5]. Operation is the treatment of choice for most individuals infected with Echinococcus granulosus. Use of anthelminthic medications complements surgical management but does not replace it. The conventional operative procedures of the hydatid cyst of the liver are enucleation, cystectomy, evacuation, marsupilisation, etc. It involves a significant morbidity especially in term of wound infection. The World Health Organization (WHO) recommends percutaneous aspiration, irrigation and re-aspiration (the PAIR approach) [6]. Laparoscopic treatment of hepatic hydatid disease has been increasingly popular parallel to the progress in

Manash Ranjan Sahoo1, Anil Kumar T2, Manoj Gowda2

Affiliations: 1MS, Associate Professor, Department of Surgery, S.C.B. Medical College, Cuttack, Odisha, India; 2Post Graduate, Department of Surgery, S.C.B. Medical College, Cuttack, Odisha, India

Corresponding Author: Dr. Manash Ranjan Sahoo, Orissa Nursing Home, Medical road, Ranihat, Cuttack, Odisha, India - 753007; Phone: +919937025779; Fax: 0671-2414034; Email: manash67@gmail.com

Received: 14 November 2012
Accepted: 07 February 2012
Published: 01 April 2013
laparoscopic surgery [7]. However, fear of anaphylactic shock resulting from spill-age of hydatid fluid during treatment by the minimally invasive method may be discouraging for wider adoption of this technique [8].

We report here a novel laparoscopic technique for drainage of hydatid cyst in posterior segment of liver in a series of four patients who had two hydatid cysts in same lobe of the liver by approaching second cyst in the posterior segment through the first cyst.

CASE SERIES

Four patients presented to us with a history of right upper quadrant pain with no other significant symptoms. Ultrasound scan revealed two cystic lesions with membranes with spoke wheel appearance which are features of hydatid cyst in the right lobe of liver with one of the cyst in posterior segment of liver. Computed tomography (CT) scan confirmed the diagnosis in all cases. Liver function tests were normal in all patients. There were no features of choangitis or cholestasis. All other biological parameters were normal. All the patients were planned for laparoscopic drainage.

Under general anesthesia through a four-port (two 10 mm, two 5 mm ports) approach bulge was identified over liver (Figure 1). Cyst was identified by aspirating with veress needle inserted transfascially. Keeping veress needle in place Palanivelu’s hydatid system was introduced (Figure 2) and punctured the cyst at the site of insertion of veress needle and cyst content aspirated without spillage. Continuous aspiration was done with irrigation of cyst with cetrimide solution. Then telescope was introduced to visualize the interior of cyst, if any redundant material left, it was irrigated and aspirated, deroofing of the cyst was done after removal of ectocyst membrane (Figure 3) and looked for any biliary leakage which was found in two of our cases which was ligated with figure of eight with 2-0 vicryl intracorporeally that prevented further leakage. Now the second cyst which was close to the first cyst but in posterior segment was also aspirated with veress needle to confirm through the drained first cyst. Now the Palanivelu’s hydatid system was introduced through the drained first cyst where veress needle is introduced. Again same procedure of aspiration, irrigation with cetrimide and again aspiration was done. Ectocyst membrane of the posterior hydatid cyst was removed through the first cyst (Figure 4). Lastly, interior of both first and second cyst was visualized with telescope for redundant daughter cyst and bile leakage. Abdomen was irrigated with normal saline. Closed tube drain was placed within the cyst cavity and ports closed.

Postoperatively, patients had very good recovery and it was uneventful.

DISCUSSION

Although liver hydatid cysts are usually asymptomatic, the most common symptoms are pain
and hepatomegaly. Fever and jaundice may accompany complicated cysts. Ultrasoundography is the primary diagnostic tool owing to its low cost, and high specificity and sensitivity. Computed tomography, magnetic resonance imaging (MRI) (MRCD) may be used for better documentation and definition of the vascular/biliary anatomy. Ultrasound is particularly useful for the detection of cystic membranes, septa, and hydatid sand, while CT best demonstrates cyst wall calcification and cyst infection [9]. Ultrasonographic appearances have also formed the basis of classification of liver hydatid cysts by various authorities like Gharbi [10], WHO [6], and Milicevic [11].

Treatment depends on stage, localization, size, and complications of the cysts. Chemotherapy should be the first choice for disseminated disease and for patients who have a prohibitively high risk for surgery. Albendazole in the dose of 10-15 mg/kg/day is used [12] in conditions like widely disseminated hydatid disease [13], localized disease in poor surgical risk patients [14], ruptured cysts [15], and patients in whom significant intraoperative spillage has occurred [16, 17]. Franchi et al. used 10 mg/kg/day albendazole on 448 patients with uncomplicated hydatid cyst for 6 months. They found that 74% of the patients had degeneration in their cysts, and the persistence rate was 25% at the end of 6 months [18].

Surgery is the primary treatment for echinococcal disease. The appropriate treatment of hydatid cyst is determined by several factors and is surgical or percutaneous drainage with intracystically injected scolicidal agents and chemotherapy. The most common techniques for liver hydatid disease treatment are marsupialization, partial cystopericyctectomy with resection of the pericyct and subtotal pericyctectomy by peeling the pericyctum. Cystectomy is considered the least traumatic method for hydatid cysts excision, but there is typically a larger residual cavity that can lead to a number of life-threatening complications such as suppuration, recurrence, and biliary fistula. Suture obliteration, omentoplasty, introflexion, double breasting, simple closure, deroofing, and tube drainage [19–25] are the most commonly used techniques for residual cavity management. If the cyst is localized peripherally, total cystectomy or hepatic resection is recommended because of the low rate of recurrence.

The first report of laparoscopic treatment of hydatid cyst of the liver was published in 1994 [26] followed soon thereafter by the first report of anaphylactic shock complicating laparoscopic treatment of hydatid cysts of the liver [27]. Laparoscopic treatments that have been described include cystotomy, partial pericyctectomy, and total pericyctectomy [28, 29]. Laparoscopic techniques are gaining popularity even though no fail-safe methodology has been devised to completely ensure the prevention of cyst spillage. Good laparoscopic candidates include those with superficial fluid filled cysts. One of the problems faced in laparoscopic treatment of liver hydatid cysts is the difficulty in evacuating the particulate contents of the cyst, the daughter cysts, and laminated membrane. Various instruments have been described to evacuate the contents of hydatid cysts [30–36]. Advantages of the laparoscopic procedures include less pain, good cosmetic results, rapid recovery, and decreased complications. The only cysts not removed laparoscopically are deep intraparenchymal cysts close to the vena cava, or cysts containing thick, calcified walls [37, 38]. A study out of Amsterdam demonstrated that laparoscopic treatment of anteriorly located hepatic cysts had a success rate of 77–100%, with low complication and recurrence rates 0–17% and 1–9%, respectively [39].

In this series, we drained the second cyst of the liver located in the posterior segment through first laparoscopically without any difficulty thereby accessing even the posterior segment hydatid cyst giving patient benefit of minimal invasive surgery.

CONCLUSION

This novel technique of approaching second cyst through first cyst is safe, feasible, very effective for cysts in the posterior segments and yield good results and recommend this technique in selected patients.

*******

Author Contributions

Manash Ranjan Sahoo – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Anil Kumar T – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Manoj Gowda – Conception and design, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published
Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Manash Ranjan Sahoo et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.icaseareportsandimages.com/copyright-policy.php for more information.)

REFERENCES


Basaloid squamous cell carcinoma of the oral cavity: A case series

Kenji Yamagata, Rei Karube, Toru Yanagawa, Wolfgang Zemann, Philipp Metzler, Kojiro Onizawa, Hiroki Bukawa

ABSTRACT

Introduction: Basaloid squamous cell carcinoma (BSCC) has been reported as a highly aggressive, malignant tumor with a high rate of both local recurrence and regional and distant metastases. The purpose of this review is to examine the characteristics and prognosis of BSCC occurring in the oral cavity. Case Series: We here present three cases of oral BSCC. Case 1: A 49-year-old male was clinically and radiologically classified as T3NoMo (Stage III).

He underwent chemoradiotherapy and more than 8 years after treatment, the patient is alive without evidence of recurrence. Case 2: A 69-year-old female was classified as T3aN0Mo (Stage IVA). She underwent chemoradiotherapy, and died from lung and liver metastasis 4 years and 3 months after her first visit. Case 3: A 73-year-old male was clinically and radiologically classified as T2N2cMo (Stage IVA). The patient underwent chemoradiotherapy and bilateral neck dissection. More than about 5 years after surgery, the patient is alive without evidence of recurrence. Discussion: About a hundred cases of oral BSCC have been reported, and we review previous reports of oral BSCC cases. Oral BSCC has a lower rate of distant metastasis than head and neck BSCC. Conclusion: In contrast to the aggressive behavior of BSCC occurring in the head and neck, BSCC occurring in the oral cavity appears to have a lower rate of distant metastasis than head and neck BSCC. When it comes to the follow-up of patients for metastases, a more thorough work-up is recommended for patients with oral BSCC than for patients with SCC.

Keywords: Basaloid squamous cell carcinoma (BSCC), Oral, Cervical lymph node metastasis, Distant metastasis

**********


**********

INTRODUCTION

Basaloid squamous cell carcinoma (BSCC), first described in the head and neck by Wain et al. in 1986 [1], is a rare subtype of squamous cell carcinoma (SCC). In the upper aerodigestive tract, BSCC occurs most frequently at the base of the tongue, the larynx, and the hypopharynx [1–3]. The neoplasm is composed chiefly of basaloid cells with typical foci of squamous differentiation, and the basaloid cells have dark hyperchromatic nuclei and scant cytoplasm. The neoplasm occasionally shows peripheral cellular palisading, comedonecrosis, and intratumoral cystic spaces [4].

Head and neck BSCC, which is considered to be a highly aggressive malignant tumor, is characterized by a high rate of both local recurrence and regional and distant metastases [2, 3, 5]. Recently, some studies have reported relatively large numbers of patients who presented with head and neck BSCC, and have attempted to determine whether their outcomes differed from the outcomes of patients with similar presentations of common SCC [6, 7].

In the oral cavity, BSCC has a predilection for the tongue [2, 4, 8], although it has been described in other locations including the floor of the mouth [2, 9], the palate [5, 10], the buccal mucosa [11] and the gingiva [12]. The prognosis of oral BSCC is reported to be worse than that of conventional SCC due to the advanced stage at which cases have been discovered [13]. However, it has also been reported that the prognosis of oral BSCC does not differ from that of conventional SCC [8]. About a hundred cases of oral BSCC have been reported, but almost all of the sample sizes have been too small to summarize its behavior and prognosis [2, 4, 5, 8–18]. Since the incidence of oral BSCC is low, studies encompassing oral BSCC have often included cases of BSCC originating in the head and neck, which precludes reliable findings on the clinical behavior of oral BSCC specifically. In this article, we report three cases of oral BSCC and review previous reports of oral BSCC cases.

CASE SERIES

Case 1: A 49-year-old Japanese male was referred to the Department of Oral and Maxillofacial Surgery at Tsukuba University Hospital with a 3-month history of a mass lesion in his left soft palate. He had a medical history of gout. Examination of the oral cavity revealed a red, irregular granulation-like mass in the soft palate towards the retromandibular region (Figure 1). The regional lymph nodes were normal. A chest X-ray revealed no lung metastasis. An incisional biopsy performed under local anesthesia was histopathologically diagnosed as BSCC. Microscopic examination showed epithelial-like and basaloid tumor cells with an alveolar architecture and peripheral palisading, hyperchromatic nuclei with a high nuclear/cytoplasmic (N/C) ratio, and frequent mitosis (Figure 2). The patient was clinically and radiologically

Figure 1: Intra-oral tumor appearance (Case 1). Examination of the oral cavity revealed a red, irregular, granulation-like mass in the soft palate towards the retromandibular space.

Figure 2 (A and B): Pathological appearance (Case 1). Microscopic examination showed alveolar architecture and peripheral palisading formed by epithelial-like and basaloid tumor cells. These cells showed hyperchromatic nuclei with a high N/C ratio and frequent mitosis. Magnification: (A) x100, (B) x400.
classified as T3N0M0 (Stage III). The patient underwent chemoradiotherapy with a total delivered dose of 66.6 Gy along with 5-fluorouracil and cisplatin or nedaplatin. More than eight years after radiotherapy, the patient is alive without evidence of recurrence.

Case 2: A 69-year-old Japanese female was referred to the Department of Oral and Maxillofacial Surgery at Tsukuba University Hospital with a 4-month history of difficulty of moving her tongue. Her medical history included gallstone disease, nephroclerosis, and cataract. Examination of the oral cavity revealed a 25-mm diameter mass in the right side of the dorsum towards the root of the tongue (Figure 3). The regional lymph nodes were normal. A chest X-ray revealed no lung metastasis. An incisional biopsy was performed under local anesthesia. Although microscopic examination showed partial adenoid cystic differentiation, epithelial-like and basaloid tumor cells had formed an alveolar and palisading architecture, and the tissue was histopathologically diagnosed as BSCC (Figure 4). The patient was clinically and radiologically classified as T4aN0M0 (Stage IVA). She refused radical surgery and underwent chemoradiotherapy with a total delivered X-ray dose of 52.2 Gy and proton beam dose of 27.6 Gy, along with 5-fluorouracil and nedaplatin. This met with only a partial clinical response, but she refused more radical surgery. Three and a half years later, both regrowth of the primary tumor and metastasis to the lung and liver were observed. The patient died from lung and liver metastasis 4 years and 3 months after her first visit.

Case 3: A 73-year-old Japanese male was referred to the Department of Oral and Maxillofacial Surgery at Tsukuba University Hospital with a 3-month history of mass lesion in the left floor of his mouth. He had a medical history of hypertension and bronchial asthma. Examination of the oral cavity revealed an irregular granulation-like 22x15 mm mass in the floor of the mouth (Figure 5). Both computed tomography (CT) scan and magnetic resonance imaging (MRI) scan showed swelling of the submandibular lymph nodes on both sides. Lung metastasis was not detected in the chest X-ray. An incisional biopsy performed under local anesthesia was histopathologically diagnosed as BSCC (Figure 6). Microscopic examination showed epithelial-like and basaloid tumor cells forming a lobulate or papillary alveolar architecture. These cells showed peripheral palisading along with hyperchromatic, high N/C ratio nuclei and frequent mitosis. The patient was clinically and radiologically classified as T2N2cM0 (Stage IVA). The patient underwent chemoradiotherapy with a delivered total dose of 69 Gy along with 5-fluorouracil, docetaxel, and nedaplatin. The primary response was complete, but with remaining lymphadenopathy. A bilateral neck dissection was performed. More than about 5 years after surgery, the patient is alive without evidence of recurrence.

Figure 3: Intra-oral tumor appearance (Case 2). Examination of the oral cavity revealed a 25-mm diameter mass in the right side of the dorsum towards the root of the tongue.

Figure 4 (A and B): Pathological appearance (Case 2). Although partial A and B adenoid cystic differentiation was present, epithelial-like and basaloid tumor cells formed palisading and alveolar architecture. Magnification: (A) x100, (B) x400.
DISCUSSION

The BSCC has been described mostly among men in their sixth to seventh decade, and has been associated with tobacco and alcohol abuse. Most instances of BSCC present at a high tumor stage and seem to have a propensity for lymph-node and systemic metastases [7, 19]. These reports agree with our summary of previously reported oral cases, in which 72.5% of the patients were male and 27.5% were female, and the mean age was 61.4 years. Over 60% presented with a tumor stage greater than III (Tables 1 and 2).

Macroscopically, BSCCs are typically firm-to-hard exophytic nodular masses with central necrosis. The BSCC cells are referred to as basaloid because of their immature appearance, and they resemble cells of the basal layer of typical stratified squamous epithelium [19]. BSCC has two distinct phenotypes: basaloid and squamous. The most common BSCC growth pattern is solid nests with a typical cell population, basaloid at the periphery and squamous at the center.

In the oral cavity, the differential diagnosis of BSCC principally includes adenoid cystic carcinoma, polymorphous low grade adenocarcinoma (PLGA), basal cell adenocarcinoma (BCA), salivary duct carcinoma (SDC), and adenosquamous carcinoma (ASC) [13]. BSCC can be mistaken for solid ACC due to pseudoglandular formations with hyalinized and eosinophilic deposits. However, ACC is not associated with SCC. The cytologic and histomorphologic characteristics of solid-type ACC are quite similar to those of BSCC. Short-term ACC biologic behavior is less aggressive than that of BSCC; regional lymph node metastases are infrequent at the initial presentation, and distant metastases develop late in the follow-up [6]. Ide et al. reported the following helpful features in differentiating BSCC from solid ACC:

(1) classic cribriform patterns are limited, when present, in BSCC
(2) even in the solid type of ACC, well-formed tubular structures are almost always present, while nuclear pleomorphism, mitoses, and necrosis are rare
(3) focal squamous differentiation in the basaloid nests is only rarely evident in ACC, and most importantly
(4) ACC does not contain SCC foci or exhibit carcinomatous changes in the surface epithelium[13].

Many authors have reported that head and neck BSCC is more aggressive than SCC, whereas others have found similar prognoses for BSCC and SCC at similar stages. Soriano’s study showed fewer locoregional failure-related deaths for BSCC, while the rates for distant metastases and overall survival were worse. The distant metastasis rates were 41% and 6% for BSCC and SCC, respectively [3]. Therefore, the authors recommended routinely performing a chest CT scan and FDG-PET to rule out early distant metastasis, and the inclusion of adjuvant chemotherapy in the treatment protocol. In that study, the treatment opinions were based on tumor site and stage and patient characteristics, and not on the histological subtypes currently used in routine practice. In most case studies
Table 1: Review of literatures for characteristics and prognosis of oral BSCC

<table>
<thead>
<tr>
<th>Author</th>
<th>Year of publication</th>
<th>No. of patients</th>
<th>Sex ratio (M/F)</th>
<th>Mean age (Range)</th>
<th>Primary tumor site</th>
<th>Tumor stage</th>
<th>Neck lymph node metastasis</th>
<th>Distant metastasis</th>
<th>Outcome</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case control and review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ide</td>
<td>2002</td>
<td>46</td>
<td>19/15</td>
<td>61 (39–83)</td>
<td>Tongue 28, Floor of mouth 13, Palate 3, Buccal mucosa 1, Gingiva 1</td>
<td>Stage I 4, Stage II 9, Stage III 9, Stage IV 12</td>
<td>17</td>
<td>6</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>de Sampaio Goes</td>
<td>2004</td>
<td>17</td>
<td>15/2</td>
<td>59 (43–77)</td>
<td>Floor of mouth 9, Tongue 4, Gingiva 4, Tongue 4, Maxillary sinus 4</td>
<td>ND</td>
<td>12</td>
<td>4</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Yu</td>
<td>2008</td>
<td>14</td>
<td>14/0</td>
<td>58.2 (43–70)</td>
<td>Gingiva 3, Floor of mouth 2, Mandible 1</td>
<td>Stage II 4, Stage III 1, Stage IV 9</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Case series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altavilla</td>
<td>1999</td>
<td>3</td>
<td>3/0</td>
<td>61.7 (53–75)</td>
<td>Floor of mouth 1, Palate 1, Gingiva 1</td>
<td>Stage I 1, Stage III 2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Paulino</td>
<td>2000</td>
<td>6</td>
<td>3/3</td>
<td>63.3 (43–85)</td>
<td>Tongue 3, Floor of mouth 2, Palate 1</td>
<td>Stage I 1, Stage II 2, Stage IV 3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Coletta</td>
<td>2001</td>
<td>2</td>
<td>1/1</td>
<td>60.5 (58–63)</td>
<td>Buccal mucosa 2, Floor of mouth 2, Gingiva 1, Tongue 1</td>
<td>Stage III 2, Stage I 1, Stage II 1, Stage IV 2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Kunkel</td>
<td>2004</td>
<td>4</td>
<td>ND</td>
<td>58 (42–68)</td>
<td>Palate 3, Tongue 1, Floor of mouth 1,</td>
<td>Stage I 2, Stage II 2, Stage I 2, Stage II 2,</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ereno</td>
<td>2008</td>
<td>6</td>
<td>5/1</td>
<td>64.1 (54–72)</td>
<td>Palate 3, Tongue 1, Floor of mouth 1,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>Stage III</td>
<td>Stage II</td>
<td>Stage I</td>
<td>Buccal mucosa</td>
<td>Palate</td>
<td>Gingiva 1</td>
<td>Gingiva 2</td>
<td>Floor of mouth 1</td>
<td>Floor of mouth 2</td>
<td>Tongue 1</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>---------</td>
<td>--------</td>
<td>--------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hiran</td>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Subramanian</td>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Present case</td>
<td>2011</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Abbreviations: ND, not described.
of BSCC the primary treatment modality was surgery, with or without adjuvant radiotherapy [19]. In Soriano’s series, the survival rates differed significantly between the case and control groups despite similar treatment modalities [3]. Survival rates for T1 and T2 cases were 64% for BSCC, and 86% for SCC. Similarly, the survival rates for T3 and T4 cases were 57% for BSCC, and 85%, for SCC. On the other hand, in a homogenous series of node-positive patients treated with chemoradiotherapy with or without neck dissection, the local control rates were similar. These data may suggest that BSCC has relatively good radiosensitivity in spite of its high rate of metastasis and poor survival rates [19].

The comparative analysis of the clinical course and prognoses of BSCC and conventional SCC has aroused controversy in literature. Although some authors have observed that BSCC is more aggressive than SCC, others suggest that the two have similar prognoses [2, 3, 5]. It is difficult to compare the biological features and clinical course of oral BSCC and conventional oral SCC in groups of matched patients. Three case-control studies comparing clinical and prognostic features in patients with BSCC included poorly differentiated and moderately to well-differentiated SCC of the oral cavity [4, 8, 20]. Yu et al. reported that the rate of cervical lymph node metastasis of BSCC was as high as 67%, and that the rate of distant metastasis was 13% [4]. Radical surgeries were performed in all patients in that study; the tumor recurrence rate was 33%, and the 5-year survival rate was 32%. The researchers concluded that the biological behavior and prognosis of BSCC was similar to that of poorly differentiated SCC. Another case-control study reported a 5-year survival rate of 46% for oral BSCC [8, 20], and concluded that prognoses did not differ between patients with BSCC and those with conventional SCC. These studies support the idea that oral BSCC has a similar, rather than worse, behavior and prognosis in comparison to conventional SCC.

A summary of clinical characteristics previously reported for oral BSCC cases is presented in Tables 1 and 2. Clinical stages were classified as stage I for 12 patients (15.4%), stage II for 20 (25.6%), stage III for 16
CONCLUSION

Oral BSCC has a lower rate of distant metastasis than head and neck BSCC. In contrast to the aggressive behavior of BSCC occurring in the head and neck, BSCC occurring in the oral cavity appears to have a prognosis almost similar to that of conventional SCC. But sometimes, oral BSCC is more aggressive than conventional SCC. Therefore, when it comes to the follow-up of patients for metastases, a more thorough work-up is recommended for patients with oral BSCC than for patients with SCC.

Author Contributions

Kenji Yamagata – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Final approval of the version to be published
Rei Karube – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Final approval of the version to be published
Toru Yanagawa – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Wolfgang Zemann – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Philipp Metzler – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Kojiro Onizawa – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Hiroki Bukawa – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Kenji Yamagata et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.iacasereportsandimages.com/copyright-policy.php for more information.)

REFERENCES

Coccidioidomycosis and erythema nodosum in pregnancy

Yousef Usta, Wesley Shealey

ABSTRACT

Introduction: Erythema nodosum may be the first sign of a systemic disease such as tuberculosis, viral, bacterial or fungal infections such as coccidioidomycosis. Other causes include sarcoidosis, inflammatory bowel disease, cancers, pregnancy/hormone related, idiopathic, and medication side effects. Diagnosing the primary cause of this skin manifestation may help a clinician find the underlying disease. Case Report: A 24-year-old, gravida 1, para 1, 8 weeks pregnant Mexican-American female living in Phoenix Arizona presented with symptoms of shortness of breath of 2 weeks duration. She complained of shortness of breath, pleuritic chest pain, and persistent productive cough. She also developed new painful lesions on her lower extremities that were found to be erythema nodosum. Coccidioidomycosis IgM and IgG serologies were positive. She was started on amphotericin B 5 mg/kg IV three days/week for four weeks and her skin lesions and respiratory symptoms subsided within a few days. At the start of her second trimester of pregnancy she was switched to fluconazole 400 mg PO for four more weeks. Conclusion: Coccidioidomycosis during pregnancy shows a more favorable outcome when erythema nodosum is present. Therapy for this fungal infection remains to be based on expert opinion. Amphotericin B is considered relatively safe in pregnancy, and there is insufficient evidence for the safety of fluconazole. Keeping high clinical suspicion of coccidioidomycosis for patients who present with erythema nodosum in the south-west United States, especially in pregnant patients with respiratory symptoms, will help clinicians not miss this commonly seen fungal disease.

Keywords: Erythema Nodosum, Coccidioidomycosis, Pregnancy

**********


**********


INTRODUCTION

Erythema nodosum may be the first sign of a systemic disease such as tuberculosis, viral, bacterial or fungal infections. Other causes include sarcoidosis, inflammatory bowel disease, cancers, pregnancy/hormone related, idiopathic, and medication side effects. The hallmark of erythema nodosum is tender, erythematous, subcutaneous nodules that are typically located symmetrically on the anterior surface of the lower extremities [1]. Diagnosing the primary cause of this skin manifestation may help a clinician find the underlying disease.
CASE REPORT

A 24-year-old, gravida 1, para 1, 8 weeks pregnant Mexican-American female presented with symptoms of shortness of breath of two weeks duration and new painful lesions on her lower extremities. As an outpatient, she was found to have a left lower lobe consolidation on chest X-ray and was treated with azithromycin 500 mg PO daily for five days for a presumed community acquire pneumonia. One week later, she presented to the hospital after no improvement of her respiratory systems and was assumed to have failed outpatient medical PO antibiotic therapy. She continued to complain of shortness of breath, pleuritic chest pain, and a persistent productive cough. She reported a new onset of subjective fevers and chills of two days duration. She also developed new tender lesions on her thighs, shins and ankles of two days duration. She complained of a 9 lb weight loss over a two-week period. Patient had lived in Phoenix Arizona for the last 17 years. She denied any sick contacts, recent travel contacts, or history of any tuberculosis and malignancy in her family. She also denied alcohol, tobacco and drug abuse. Sexual history included her husband only. Past medical history included latent tuberculosis with complete therapy for nine months with isoniazide 5 mg/kg PO one year ago. Physical examination showed relatively normal heart and lungs sounds. She had multiple red tender macular lesions with poorly defined borders all over her feet, shins, and thighs sparing her soles. Lesions were hard, and very tender that varied from 0.5–2 cm. These lesions had no bruising or ulceration. On admission, her vital signs were as follows: heart rate 80 bpm, temperature 36.6°C, respiratory rate 16 bpm, blood pressure of 109/78 mmHg, and SpO2 100% on room air. White blood cell count 7.1×10^6/µL (4–10×10^6/µL), hemoglobin 10.9 g/dL (12–16), hematocrit 31.7% (36–47%), platelet count 216×10^9/µL (150–350×10^9/L). A complete metabolic panel, urine analysis, urine strep antigen, nasal viral swab, and blood cultures were all negative. Sputum culture was negative and grew mixed oral flora. Her chest X-ray revealed a 3×5×9 cm ill defined consolidation in the medial left lower lobe with associated air bronchogram. There was no evidence of pneumothorax or pleural effusions. The patient was started on rocephin 1 g IV daily and azithromycin 500 mg IV BID to treat community acquired pneumonia. Throughout her stay, patient was afebrile with no leukocytosis. Deep skin punch biopsy showed septal panulicities with inflammation in the fat and around blood vessels consistent with erythema nodosum. The positive skin findings prompted testing for coccidioidomycosis IgM and IgG serologies which were also positive. Previous antibiotics were discontinued and she was started on amphotericin B 5 mg/kg IV daily, and her symptoms of shortness of breath, chest pain, and lower extremity lesions all subsided over three days and she was discharged home on amphotericin B IV 5 mg/kg for 3 days per week for 4 weeks until the completion of her first trimester of pregnancy. At that point, she was symptom free and was started on fluconazole 400 mg PO daily to avoid relapse of the disease. She will be monitored monthly for symptom recurrence and the unlikely possibility of fetal malformations.

DISCUSSION

Coccidioides immitis is endemic in certain parts of the desert south-west-region and is commonly referred to as Valley Fever. It is a fungus that resides in the soil that breaks off into airborne spores. Infection is caused by inhalation of the particles and is not transmitted from person to person. Serious complications include severe pneumonia, lung nodules, and disseminated disease. The disseminated form of coccidioidomycosis can devastate almost any organ in the body, causing skin ulcers, abscesses, bone lesions, meningitis, and often death [2, 3].

Coccidioidomycosis during pregnancy is a serious illness for which high rates of mortality have been reported [4–6]. It has been associated with a greater likelihood of extrapulmonary dissemination and more serious outcomes. A small study looked at the outcome of erythema nodosum on coccidioidomycosis infections. Sixty-one pregnant patients with coccidioidomycosis were studied. Thirty (49%) were found to have erythema nodosum. Ninety-seven percent of these patients had full recovery and none were found to have disseminated fungal disease, showing a more favorable outcome when erythema nodosum was present [4].

There is minimal literature and evidence on therapy for pregnant patients infected with coccidioidomycosis. Therapeutic options remain to be based on expert opinion only. Case reports have suggested a link between the maternal use of fluconazole and craniofacial abnormalities in the newborn [7]. Based on expert opinion, prompt initiation of antifungal medication should be started for patients who are expected to become more severely ill with pulmonary coccidoidal infection. These patients include diabetics, patients with pre-existing cardiopulmonary disease, and pregnant patients, especially in the third trimester or immediately postpartum [2]. During pregnancy, amphotericin B is the treatment of choice because of fluconazole’s possible teratogenicity [2, 8]. More recent studies have failed to show an association between maternal use of fluconazole during the first trimester and congenital malformations in the offspring [8–10]. Recent studies also showed that fluconazole use at anytime during pregnancy had no associated link to pre-term birth, lower birth weights, or still births. Although their sample size remained insufficient for examining the risks of specific birth defects [8].

Although we predominantly thought that coccidioidomycosis was the most likely precipitating cause for erythema nodosum, our differential diagnosis included viral and bacterial infections, idiopathic causes, pregnancy, hormonal changes, and medication induced side effects. In our case, the patient does not improve
with antibiotics, the negative blood, urine, and sputum cultures helped ruling out a bacterial infection. Since the viral swabs were negative and the patient’s symptoms got worse over a two-week period makes viral upper respiratory infection was considered unlikely. We believe that this pregnant patient’s relative immune-compromise made her more susceptible to developing coccidioidomycosis. Because she had both positive IgM serologies for coccidioidomycosis, and her severe respiratory symptoms and lower extremity erythema nodosum subsided immediately after beginning amphotericin B, we are confident that her symptoms were related to this fungal infection rather than having an idiopathic cause. Erythema nodosum in subsequent pregnancies will help reveal if the erythema nodosum was strictly secondary to her fungal infection or whether her pregnancy played a role in its development.

CONCLUSION

Coccidioidomycosis during pregnancy shows a more favorable outcome when erythema nodosum is present. There is minimal evidence on therapy for pregnant patients infected with coccidioidomycosis and therapy remains to be based on expert opinion. Diagnosing the precipitating source for erythema nodosum may be quite challenging. Having a broad differential diagnosis for erythema nodosum will avoid missing rare and life threatening infections. Keeping high clinical suspicion of coccidioidomycosis for patients who present with erythema nodosum in the south-west United States, especially in pregnant patients with respiratory symptoms, will help clinicians not miss this commonly seen fungal disease.

********

Author Contributions
Yousef Usta – Substantial contributions to conception and design, acquisition of data, analysis and interpretation of data, drafting the article, revising it critically for important intellectual content, and final approval of the version to be published
Wesley Shealey – Substantial contributions to conception and design, acquisition of data, analysis and interpretation of data, drafting the article, revising it critically for important intellectual content, and final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Yousef Usta et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www jäcasereportsandimages com /copyright-policy.php for more information.)

REFERENCES

Severe cholestatic jaundice secondary to hyperthyroidism

Yousef Usta, Julia Massaad, Samir Parekh, Laura Knecht

ABSTRACT
Introduction: Hyperthyroidism is a known cause of nonspecific abnormalities in liver biochemistries; most commonly mild elevations in serum bilirubin and liver enzymes. Case Report: A case of severe cholestatic jaundice secondary to Grave’s disease. The patient is a 28-year-old African-American male who presented to the emergency room with chronic diarrhea, weight loss and jaundice. At presentation, his liver enzymes were elevated in a cholestatic pattern and his bilirubin was 21.4 mg/dL. Upon treatment with propranolol and propylthiouracil, his diarrhea, pruritus, jaundice, and liver enzymes quickly improved. His bilirubin returned to normal over a period of two months. Conclusion: While severe intrahepatic cholestasis and jaundice due to hyperthyroidism is rare, the diagnosis should be considered in patients presenting with manifestations of liver disease, as appropriate treatment of hyperthyroidism results in resolution of jaundice.

Keywords: Hyperthyroidism, Cholestasis, Jaundice

INTRODUCTION
The term thyrotoxicosis refers to the clinical syndrome resulting from serum elevations in thyroid hormone levels. The cause of hepatic dysfunction in hyperthyroidism may be multifactorial, occurring solely as a result of hyperthyroidism, drugs used to treat hyperthyroidism, hepatic congestion from thyrotoxic heart failure, autoimmune hepatitis, primary biliary cirrhosis, viral hepatitis, alcohol abuse, sepsis, and cholangitis. Medications such as oral contraceptives, propylthiouracil, acetaminophen, isoniazid and rifampicin can also be implicated as well [1–5].
Thyrotoxicosis is known to cause a variety of nonspecific abnormalities in liver biochemistries, but there has been no evidence to suggest that thyroid hormones have a direct toxic effect on the liver. The liver is the primary organ of thyroid hormone metabolism, which may explain how thyroid disorders can result in liver profile derangements. Hepatic dysfunction associated with hyperthyroidism has been documented in literature for over 100 years, but the pathophysiology is yet to be determined. Modest elevation in transaminases is the most common liver manifestation of thyroid disease. However, cholestatic jaundice may rarely occur [5]. We present an interesting case of severe cholestatic jaundice secondary to hyperthyroidism due to Grave’s disease.
CASE REPORT

A 28-year-old obese African-American male was referred to our hospital for evaluation of chronic diarrhea, jaundice, and pruritus of three months duration. His diarrhea was nonbloody, watery, and was associated with mild nonspecific abdominal pain. In addition, he reported a 10 pound unintentional weight loss over a three-month period. His past medical history included only hypertension, and he was not taking any prescribed medications.

The patient denied any history of hepatitis, blood transfusions, high risk sexual behavior, international travel, or intravenous drug use. He denied heavy alcohol or over the counter/herbal medication use. He denied family history of liver or autoimmune diseases.

General examination showed a 60-in tall male weighing 232 lbs who claimed to weigh over 300 lbs. Vital signs were notable for tachycardia with a heart rate of 110. He had significant scleral icterus. His neck was soft and symmetric with palpable prominence of the isthmus and pyramidal lobes of the thyroid. A thyroid bruit was not appreciated. There was no hepatosplenomegaly or stigmata of chronic liver disease other than jaundice.

His laboratory examination, on admission, were as follows: total bilirubin 18.1 mg/dL (0.3–1.2 mg/dL) peaking at 21.4 mg/dL, direct bilirubin was too high to measure >10 mg/dL (0–0.3 mg/dL), alkaline phosphatase 200 U/L (36–92 U/L), ALT 62 U/L (0–35 U/L), AST 89 U/L (0–35 U/L), amylase 66 U/L (0–130 U/L), lipase 19 U/L (<95 U/L), LDH 199 U/L (60–100 U/L), and albumin was 2.0 g/dL (3.5–5.5 g/dL). INR was 1.0, white blood cell count 7800/mm³ (4–10×10⁹/mm³), hemoglobin 8.8 g/dL (14–17 g/dL), and platelets 316×10⁹/L (150–350×10⁹/L). TSH was 0.02 mU/mL (0.5–5 mU/mL), T₃ 546 ng/dL (70–195 ng/dL), and T₄ 15.5 μg/dL (5–12 μg/dL).

Abdominal ultrasound as well as magnetic resonance imaging (MRI)/magnetic resonance cholangiopancreatography of the abdomen showed a normal appearing liver without biliary duct dilatation. Endoscopic retrograde cholangiopancreatography was performed demonstrating a small sized common bile duct with intrahepatic ductopenia. No strictures or classic features of primary sclerosing cholangitis were noted. A liver biopsy showed a predominantly cirrhotic cholecyst with hepatocellular feathering degeneration, as well as acute cholangitis and pericholangitis with predominant peripoal and perivenular fibrosis. Other work-up including viral hepatitis serologies, autoimmune liver disease markers, HIV testing, and stool studies which were all negative. Flexible sigmoidoscopy with random biopsies was negative for a diarrhea work up.

A thyroid scan showed an enlarged thyroid gland with a homogenous increased diffuse uptake. Antimicosomal and thyroid peroxidase antibodies were found to be positive and consistent with Grave’s disease. He was started on propranolol and propylthiouracil. After completing the thorough diagnostic work-up mentioned above, his hepatic dysfunction was attributed to hyperthyroidism due to Grave’s disease by exclusion. Upon discharge, the patient’s liver and thyroid profiles improved TSH 0.31 mU/mL (0.5–5 mU/mL), T₃ 486 ng/dL (70–195 ng/dL), and T₄ 4.7 μg/dL (5–12 μg/dL). At follow-up two months later, his jaundice (total bilirubin 0.7 mg/dL (0.3–1.2 mg/dL)), pruritis, and diarrhea had completely resolved.

DISCUSSION

The pathophysiologic effects of thyrotoxicosis on the liver remain unclear. The liver has an important role in metabolism of thyroid hormone, and autopsies have shown hepatic inflammation, fibrosis, and centrlobular necrosis in patients with hyperthyroidism [6].

Some theorize that thyrotoxicosis may cause a defect in bilirubin metabolism by decreasing bilirubin UDP-glucuronosyl transferase activity. With the presence of increased substrate build-up, hyperbilirubinemia ensues due to decreased conjugation [7]. Another proposed theory involves supply and demand mismatch. The physiologic effects of hyperthyroidism may create increased hepatic oxygen consumption without an equal increase in blood flow, causing focal hypoxemia and hepatic dysfunction [7, 8]. It has also been hypothesized that these abnormalities are in part related to congestive heart failure and venous congestion caused by hyperthyroidism, although features of congestive hepatopathy were not evident in our patient’s liver biopsy [9].

Hyperthyroidism is a well recognized cause of abnormal liver enzymes. Acute hepatitis may increase thyroid hormone-binding globulin (TBG), causing an increase in the total T₄ level and a decrease in the thyroid hormone binding ratio. Bilirubin can also interfere with the measurement of T₄ by lowering the affinity of T₄ for thyroid hormone-binding proteins [10]. Kim et al. found up to 40% of patients with hyperthyroidism having increased alkaline phosphatase [11]. Similarly, Tibi et al. documented mild elevations in AST, ALT, and/or alkaline phosphatase in 30% of untreated hyperthyroid patients, with most of these cases normalizing following hyperthyroidism treatment [12]. Thompson et al. presented 85 patients with hyperthyroidism and abnormal liver function tests. The highest bilirubin value reported in this cohort was 3.5 mg/dL [13] comparing to our patient which presented with a more severe hyperbilirubinemia of 18.1 mg/dL (0.3–1.2 mg/dL), which is very rare. In the setting of hyperthyroidism, only three cases in literature have reported hyperbilirubinemia to this degree, with total bilirubin levels of 16.7 mg/dL, 18.9 mg/dL and 35 mg/dL [14–16].

Liver biopsy is a frequent tool used in the work up abnormal liver biochemistries. With hyperthyroidism, the histologic findings are nonspecific, and the main utility of liver biopsy in these cases is to exclude other potential etiologies. Sola et al. presented liver biopsies
of five patients with hyperthyroidism that revealed nonspecific changes including mild to moderate intracellular cholestasis, lobular inflammation of eosinophilic origin, and Kupffer cell hyperplasia. There was no correlation between the severity of the histologic damage and thyroid function tests [4, 17]. Our patient’s liver biopsy demonstrated a predominantly centrilobular cholestasis with hepatocellular degeneration, features in keeping with the previously reported literature.

CONCLUSION

The primary differential diagnosis for this patient’s severe cholestasis included drug toxicity, infection, autoimmune liver disease, and thyrotoxicosis. History excluded the first differential. Laboratory, imaging, and histology ruled out infectious or autoimmune etiologies. By exclusion of other diagnoses and documented improvement in the liver biochemistries with treatment of his hyperthyroidism, we concluded that this patient’s hepatic dysfunction was induced by thyrotoxicosis. We were unable to prove the patient’s claim of a 45.35 kg weight loss, but we suspect that chronic uncontrolled Grave’s disease played a critical role in his weight loss.

This case demonstrates that hyperthyroidism can result in cholestasis, and, may even cause severe hyperbilirubinemia. Hyperthyroidism should be considered in the differential diagnosis of a patient presenting with abnormal liver biochemistries. Prompt recognition and treatment of hyperthyroidism should result in clinical improvement and avoidance of unnecessary testing.

*********

Author Contributions

Yousef Usta – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Julia Massaad – Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Samir Parekh – Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Laura Knecht – Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

REFERENCES


Copyright © Yousef Usta et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.jcasereportsandimages.com/copyright-policy.php for more information.)
Peliosis hepatis and splenosis: An unusual cause of spontaneous hemoperitoneum

Kevin Mo, Daniel Tong, Ronnie Poon

ABSTRACT

Introduction: Peliosis hepatis and splenosis is a rare disease. Most patients are asymptomatic. Spontaneous hemoperitoneum can be the clinical presentation due to rupture of the involved organs. Case Report: A 73-year-old male had sequential spontaneous rupture of the liver and spleen resulting from hemoperitoneum because of peliosis hepatis and splenosis. Details of the clinical presentation, operative approach and management were described. Conclusion: The incidence, pathogenesis, clinical presentations and treatment options of peliosis hepatis and splenosis were discussed.

Keywords: Peliosis hepatis, Splenosis, Spontaneous hemoperitoneum


INTRODUCTION

Peliosis is a rare benign pathological disorder characterized by the presence of multiple blood-filled cavities within parenchymatous organs. The name is derived from the Greek word pelios which means blackish-bluish with sugillation. The term was firstly used by Wagner in 1861 to describe the gross appearance of the lesions on cut surfaces of the liver [1]. However, it was Schoenlank who coined the term peliosis hepatis in literature in 1916, where he reported a case of a young woman who died of miliary tuberculosis [2]. In 1866, Cohnheim described the first case of peliosis involving the spleen in a 27-year-old male who died suddenly as an in-patient of a psychiatric ward. Here, a case of a 73-year-old male with peliosis of the liver and spleen, presenting with spontaneous hemoperitoneum is discussed.

CASE REPORT

A 73-year-old male presented to a public hospital with acute onset paraumbilical pain for the preceding few hours. His past medical history was unremarkable and there was no documentation on the immune status or being labeled as human immunodeficient virus (HIV) carrier. He had not taking any regular medications including steroid. Subsequent chest and abdominal radiographs and blood investigations were grossly normal.

Within a few hours after admission, the patient complained of deterioration of his symptoms, and interval physical examination elicited tenderness and guarding over the right upper quadrant. A diagnostic laparoscopy was arranged promptly, and 500 mL of liquefied old blood was found inside the peritoneal
cavity. On further examination, there was a 5-cm subcapsular hematoma at segment V of the liver. The procedure was converted to a formal laparotomy for a more detailed examination but there was no additional finding. Other intra-abdominal organs including the spleen were all normal. Peritoneal lavage with normal saline was performed and it was decided to manage the liver hematoma conservatively. The abdominal wound was then closed.

After the operation, the patient recovered smoothly and was discharged after four days. Unfortunately, one week after his discharge, he presented again with acute onset of epigastric pain. Computed tomography (CT) scan of the abdomen revealed a large subcapsular hematoma with an associated intra parenchymal hepatic hematoma in segments VI/VII (Figure 1). An emergent angiogram was performed which did not demonstrate an active bleeding source. Transarterial embolization of the right hepatic artery was performed. After the procedure, his hemoglobin continued to drop and he developed hypotension. Emergency laparotomy found 1800 mL of blood inside the peritoneal cavity. A right hepatectomy was performed in light of recurrent hemorrhage and presence of hepatic subcapsular hematoma. The appearance of the surgical specimen is shown in Figure 2.

The patient remained stable after the operation until the 7th day when he developed sudden onset of hypovolemic shock again. Emergency re-laparotomy revealed 1500 mL of fresh blood within the peritoneal cavity. On this occasion, there was bleeding noted from the spleen with rupture of the splenic capsule. Splenectomy was performed for hemostasis and the rest of the laparotomy was normal. The surgical specimen of the spleen is shown in Figure 3.

Postoperatively, the patient was nursed in the intensive care unit (ICU). However, he developed liver and renal failure with associated sepsis. Despite maximal support, he succumbed two weeks afterwards because of multi-organ failure.

Histopathological examination of the liver and splenic specimens showed 'Pools of blood within the parenchyma intermixed with fibrin' confirming the diagnosis of peliosis hepatis and splenosis.

DISCUSSION

Peliosis affects parenchymatous organs and most commonly involves the liver. The condition is also known to occur in the lymph nodes, bone marrow, lungs, parathyroid gland, kidneys and as illustrated in our case, also the spleen [3]. This is a rare disorder and the reported incidence is 0.13% [4].

The presenting signs and symptoms are variable and generally non-specific. They range from asymptomatic and diagnosed incidentally to fatal outcomes. The patient of the present report presented with spontaneous rupture of the target organs causing hemoperitoneum and unfortunately resulted in mortality. Hepatomegaly, icterus and fever were the
main and characteristic symptoms in extensive peliosis reported in literature [5].

The exact cause for peliosis is unknown but is associated with wasting conditions such as tuberculosis, acquired immunodeficiency syndrome (AIDS), post-transplant immunodeficiency, malignancies and hematological disorders [6]. Recent reports also show a strong association with medications including steroids, oral contraceptive pill, adrenal androgens and azathioprine [7]. In the present case, the diagnosis of peliosis was not suspected throughout the treatment course and therefore no investigation was performed to delineate the possible underlying causes. Only when the pathological results confirmed the diagnosis did the surgeons retrospectively review the case history. It was found that this patient was not put on any medications including steroid, immunosuppressant, contraceptive pill, adrenal androgens or azathioprine and none of those associated conditions was identified.

Several theories exist regarding the pathogenesis of peliosis. Some favor congenital malformation of vessels or microcirculatory disturbances secondary to altered intravascular pressures for the development of the disease [8–10]. Others suspect that it is an acquired vascular disorder resulting from a toxic trigger (i.e., drugs) [11, 12].

Radiological diagnosis is possible but findings are variable depending on the pathological patterns of the underlying disease and various stages of the blood components. Features on CT scan or magnetic resonance imaging (MRI) scan mimic those of hepatocellular carcinoma, a hypervascular metastases or hemangiomia [13–15]. Peliosis should be considered when focal liver lesions exhibit radiological features of homogeneously high and persistent enhancement, slow centripetal enhancement, or persistently low enhancement [16]. In the present case, the CT scan was a standard emergent scanning and was different from the standard three-phase scan for diagnosis of hepatocellular carcinoma. It revealed a hepatic intra-parenchymal and subcapsular hematoma, (Figure 1). South-East Asia is an epidemic area for hepatocellular carcinoma and therefore, the diagnosis based on the CT scan at the time of presentation was ruptured hepatocellular carcinoma.

Treatment options are determined by the underlying cause. When peliosis is caused secondary to medications, cessation of the offending medications can lead to regression [4]. This was not present in our patient. For patients presenting with rupture and subsequent intra-abdominal hemorrhage can be treated effectively with transarterial embolization [17], which was one of the initial treatment modalities in our patient. The bleeding source was not identified in the angiogram and the hemodynamics continued to deteriorate that necessitated an emergent right hepatectomy. Before the formal pathology report was available, which could have guided the authors to search for other potential involving organs such as the spleen, our unfortunate patient had spontaneous rupture of the spleen. This episode became another massive hemorrhagic insult to our patient and subsequently ended in multi-organ failure. Although peliosis is a rare disease entity, one should have a high index of suspicion as one of underlying causes for spontaneous hemoperitoneum when common etiologies cannot account for the clinical picture. Retrospectively, splenectomy at the time of hepatectomy could have saved the patient for the second hemorrhagic insult but whether it was an appropriate decision at the moment of hepatectomy remained to be discussed. Liver transplantation is another reported therapeutic option for those who present with irreversible liver insufficiency and cirrhosis [18].

CONCLUSION

This case highlights that peliosis, although rare and generally asymptomatic, can present with life-threatening complications. Awareness that multiple organs can be affected is important as our patient presented with sequential rupture of his liver followed by the spleen. Peliosis should be a differential diagnosis when a hematoma within a parenchymatous organ cannot be explained.

********

Author Contributions

Kevin Mo – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Daniel Tong – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ronnie Poon – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Kevin Mo et al. 2012; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.icaseareportsandimages.com /copyright-policy.php for more information.)

REFERENCES

Persistent molar pregnancy in an ectopic tubal pregnancy treated with laparoscopic surgery: A case report

Anthony Richards, Kirsten Black, Selvan Pather

ABSTRACT

Introduction: Molar pregnancy presenting as an ectopic pregnancy is very rare with only occasional cases being previously reported. Case Report: A 50-year-old Asian female underwent a successful laparoscopic salpingectomy of an unruptured tubal ectopic pregnancy. The histopathology confirmed a complete molar pregnancy within the tubal specimen. Postoperatively, after an initial fall, there was a gradual increase in her β subunit of human chorionic gonadotropin (β-hCG) levels. The patient requested surgical intervention and she underwent total laparoscopic hysterectomy, left salpingooophorectomy, right oophorectomy and removal of residual right fallopian tube. The histopathology revealed no residual trophoblastic tissue in the excised specimen. Her β-hCG returned to normal postoperatively. Conclusion: This case report is the first example of persistent molar pregnancy of the fallopian tube being treated with completion surgery and highlights that this is an effective treatment of this rare condition.

Keywords: Ectopic pregnancy, Hydatidiform mole, Hysterectomy, Trophoblastic neoplasms


INTRODUCTION

Ectopic pregnancy is an important cause of maternal morbidity and occasionally mortality. 1.3–2% of all reported pregnancies are extraterine [1]. Quantitative measurements of the β subunit of human chorionic gonadotropin (β-hCG) and transvaginal ultrasonography have improved the accuracy of diagnosis and allow earlier detection of ectopic pregnancies than was previously possible. Deaths associated with ectopic pregnancy have declined, though more than three quarters of deaths in the first trimester and 9–13% of all pregnancy-related deaths are associated with pregnancies outside the uterus [2].

Gestational trophoblastic disease is an uncommon event with an incidence of 1/500 to 1/1000 in the developed world [3]. The most common presentation is that of a primary uterine complete or partial molar pregnancy. Molar pregnancy presenting as an ectopic pregnancy is very rare with only occasional cases being previously reported [4–9]. Previous reports have emphasized that this is associated with a good prognosis.
following laparoscopic salpingectomy. Invasive molar pregnancy and choriocarcinoma have been reported previously and this has usually been treated with chemotherapy.

We present a case of a patient who was noted to have tubal molar pregnancy after a salpingectomy for a suspected ectopic pregnancy and after a period of follow-up was noted to have persistent/invasive disease. The patient opted to have completion surgery carried out and following a total laparoscopic hysterectomy her serum markers normalized.

CASE REPORT

A 50-year-old Asian female, presented to the emergency department (ED) with vaginal bleeding and pelvic pain following seven weeks of amenorrhea. Pelvic examination showed a normal sized uterus with right adnexal tenderness. Her βhCG level was 19598 IU/L. A subsequent pelvic ultrasound demonstrated a complex right adnexal mass and free fluid in the pelvis, compatible with a right tubal ectopic pregnancy.

The patient underwent a successful laparoscopic salpingectomy of a unruptured right tubal ectopic pregnancy. Her postoperative recovery was uneventful and she was discharged the following day. The histopathology of the surgical specimen confirmed a population of dilated chorionic villi with features compatible with a complete molar pregnancy. No fetal tissues was observed, replaced by a focal area of chorionic villi deep within the muscle layer of the fallopian tube, in keeping with an invasive molar pregnancy.

She was subsequently managed conservatively with serial β-hCG levels. There was an initial significant fall after surgery (to 20 IU/L four weeks postoperation), but there was a gradual increase observed in the following three weeks (to 87 IU/L seven weeks postoperation). Computed tomography scan of the chest, abdomen and pelvis revealed no evidence of metastatic disease. The patient expressed a desire for surgical management, as her pregnancy was unexpected and future fertility was not desired. She subsequently underwent a total laparoscopic hysterectomy, left salpingo-oophorectomy and removal of the right ovary and residual fallopian tube.

The operation was uneventful and revealed evidence of a significant amount of residual fallopian tube on the right side, thought to be the source of the persistent molar pregnancy. The final pathology results revealed no residual trophoblastic disease and her serum β-hCG returned to normal a week after the operation. She was follow-up for 12 months after her surgery and had remained well with normal serum β-hCG levels.

DISCUSSION

Previous studies have estimated the incidence of ectopic molar pregnancy to be in the order of 1.5 per 1,000,000 births [3]. Tubal molar pregnancy has been described in several sites, including fallopian tube, cervix, ovary, uterine cornua, a rudimentary uterine horn and a cesarean section scar. Most have been managed with initial surgical management and diagnosis made incidentally with histopathology. In many centres tubal ectopic pregnancy is managed by systemic or intralesional methotrexate without histological confirmation of the pathology. While nearly all of these will be ectopic “normal” pregnancy, a small number are likely to be tubal molar pregnancies that are unrecognized.

The histopathological diagnosis of tubal molar pregnancy is a difficult one complicated by the fact that nontubal molar pregnancies may also exhibit hydroidic villi [10–12]. The diagnosis of tubal complete molar pregnancy requires circumferential trophoblastic proliferation, hydrops, scalloped villi, and stromal karyorrhexis associated with diploid DNA on flow cytometry [12]. One paper has suggested the overdiagnosis of ectopic molar pregnancy, with confirmation of the pathology by expert gynecological pathologists only in 6% of surgical specimens [13]. Furthermore, because of the locally invasive nature of the trophoblast forming the early gestational sac, observed as implantation site fragments in uterine curettage, ectopic pregnancies may be associated with apparent local invasion of surrounding tissues by trophoblast [13].

The persistence of elevated β-hCG after salpingectomy in our patient would imply evidence of correct pathological diagnosis of trophoblastic invasion. Moreover, despite no evidence of persistent trophoblast in the final histology after completion hysterectomy and bilateral salpingo-oophorectomy, the fall in her serum β-hCG confirms that there was likely to be a focus of residual disease in the fallopian tube. This presumption was not verified on step sections of the pathological specimen.

The risk of persistent disease after surgery for ectopic molar pregnancy is difficult to quantify, due to the small number of cases reported. Most other cases did not develop persistent gestational trophoblastic disease clinically or require chemotherapy. Hence, the risk for persistent trophoblast is likely to be similar uterine molar gestations [14]. Two previous series have noted if persistent disease in detected the early institution of systemic single agent methotrexate is associated with an excellent outcome [10, 14]. Repeat surgery has been limited to control of intra-abdominal hemorrhage whilst on chemotherapy. We discussed the options of chemotherapy with our patient, but she declined, preferring completion surgery. We were uncertain of the exact location of the recurrent disease and a laparoscopic hysterectomy and bilateral salpingo-oophorectomy was undertaken rather than a complete salpingectomy.

CONCLUSION

In our knowledge, this is the first case of persistent molar pregnancy of the fallopian tube being treated with completion surgery and highlights that this is an
effective treatment of this rare condition. It can be used as an alternative to methotrexate therapy, in the absence of metastatic disease to manage the persistently elevated β-hCG, following tubal ectopic molar pregnancy.

*******

Author Contributions
Anthony Richards – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Kirsten Black – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Selvan Pather – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Anthony Richards et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.jcasereportsandimages.com /copyright-policy.php for more information.)

REFERENCES
Benign fibrous histiocytoma of bone: A case report

Nagarekha Kulkarni

ABSTRACT

Introduction: Benign fibrous histiocytoma of bone is a rare tumor. Only few cases have been reported in literature. Case Report: A 45-year-old female presented with pain in the ankle. Radiological findings revealed osteolytic lesion of talus and histological features were similar to non-ossifying fibroma and metaphyseal fibrous defect. Because of pain, unusual location and unusual age group the lesion was diagnosed as benign fibrous histiocytoma of Talus. Conclusion: Benign fibrous histiocytoma should be considered as one of the histopathological diagnosis although benign fibrous histiocytoma of bone is a rare entity.

Keywords: Talus, Fibrous histiocytoma, Fibrohistiocytic


INTRODUCTION

The histogenesis and classification of fibrohistiocytic lesions that involve bones, are confusing and overlap several entities such as (a) metaphyseal fibrous defect, (b) non-ossifying fibroma, (e) fibrous cortical defect, (d) fibrous xanthoma and (e) benign fibrous histiocytoma [1]. Since the report by Stout and Lattes, benign or malignant histiocytic tumors arising in somatic soft tissues are becoming a well-established entity [2]. On the other hand, histiocytic tumors arising within the bone are still controversial and only recently have been recognized as a clinicopathologic entity. About 100 cases are reported in literature so far [3]. Patients have ranged in age from 6 to 74 years at diagnosis, 60% being older than age 20 years, with a slight female preponderance. Approximately, 40% of benign fibrous histiocytoma (BFH) occur in the long bones, with femur and tibia most frequently involved. As many as 25% of cases involve the pelvic bone, in particular the ilium. In the long bones, BFH is centered in the epiphysis or diaphysis. In most (65%) the lesion causes pain which may be present for days up to several years. Some patients (15%) are asymptomatic. Occasional patients present because of pathological fracture [4]. Benign fibrous histiocytoma bone composed of spindle-shaped fibroblasts, arranged in a storiform pattern, with a variable admixture of small, multinucleated osteoclast-like giant cells. Foam cells (xanthoma), chronic inflammatory cells, stromal hemorrhages and hemosiderin pigment are also present. The giant cells in BFH tend to have fewer nuclei than those found in osteoclastoma or giant cell tumor. The microscopic features were similar to metaphyseal fibrous defect seen in young children less than 5 years and second lesion is non-ossifying fibroma seen in older children between 10–15 years [5]. Both are quite benign, self-limiting and self healing unless accompanied by pathological fractures.
Herein, a case report of benign fibrous histiocytoma of talus in an elderly patient presenting with ankle pain is discussed.

CASE REPORT

A 45-year-old female was admitted to the Medical College Hospital with complaints of pain in the right ankle since 6 years. On examination tenderness was present over the lateral aspect of right ankle. Plantar flexion was restricted. There was no distal neurological or vascular deficit and the regional lymphnodes were not palpable. X-ray findings of right talus showed a lytic, loculated appearance with prominent sclerosis of the edges of the lesion. There was no matrix mineralization. The zone of transition of the lesion was narrow (Figure 1). Clinical diagnosis of osteoclastoma was made. Curretage and bone grafting were done. Curretage was sent for histopathological examination. The currettage was processed routinely. Hematoxylin and Eosin stained sections showed spindle cells arranged in storiform pattern with involvement of bone at the foci. The cells had elongated bland nuclei, moderate to abundant cytoplasm and indistinct cell margins. No pleomorphism and atypical mitotic figures were found. Scattered foamy histiocytes along with occasional foci of scattered osteoclast type of giant cells were found (Figures 2 and 3). The final diagnosis of benign fibrous histiocytoma was made. Patient’s symptoms disappeared completely 10 days after operation. There was no evidence of recurrence after two year of postoperative follow-up.

DISCUSSION

Benign fibrous histiocytoma is a relatively common and well characterized soft tissue lesion. It occurs rarely in bone, approximating to 1% of all benign bone tumors. Many authors have used the term benign fibrous histiocytoma to describe a lesion that shares similar microscopic findings with the one in this case [3]. Benign fibrous histiocytoma is microscopically identical to metaphysial fibrous defect, non-ossifying fibroma but benign fibrous histiocytoma is usually seen in older age group and have low recurrence rates [6].

There is no defined age group for this tumor except that patients are generally older than those found with a non-ossifying fibroma. Korhan et al., Zia et al. reported a case of 65 years and 32 years old female, respectively as in our case [7, 8]. It is usually found in long bones most commonly in the femur and tibia, but various authors reported BFH from pelvic, lumbar spine, rib [8]. Benign fibrous histiocytoma in the present case is unusually located in the talus. Most of the time tumor presents with pain at the site of lesion which is similar to our study. The diagnosis was based on X-ray findings, computed tomography (CT) scan, and magnetic resonance imaging (MRI) scan. In the present case only X-ray was done which showed osteolytic lesion of the talus. Benign fibrous histiocytoma should be differentiated from xanthoma of the bone, which radiologically resembles non-ossifying fibroma and
osteoblastoma. Some consider these lesions as neoplastic processes under the broad category of BFH, where as others consider primary xanthoma of bone as a separate entity [9].

Histological appearance of BFH of bone is characterized by proliferation of fibroblasts and histiocytes with many multinucleated giant cells. The fibroblasts are arranged in storiform pattern, the giant cells tend to have fewer nuclei than those found in osteoclastoma or giant cell tumor [10]. The histology of BFH of bone is similar to metaphyseal fibrous defect, non-ossifying fibroma [1].

These tumors can be locally aggressive and may recur after curettage [11]. Five out of eight patients had pain and three patients had recurrence and two patients had undergone amputation in Clarke’s series [9]. Bertoni et al. reported seven cases out of these six patients had pain with no recurrence and no amputation [12]. In our patient there was no recurrence even after follow-up of two years.

CONCLUSION

In this case the diagnosis of benign fibrous histiocytoma of bone involving talus was based on age, pain at the site of lesion, radiological findings and histological appearance. This case intends to remind that whenever an elderly patient presents with a painful bone tumor like lesion benign fibrous histiocytoma of bone should be considered as one of the histopathological diagnosis although benign fibrous histiocytoma of bone is a rare entity.

**********

Acknowledgements

I thank Director, Principal, Medical Superintendent, Professor & Head of the Department of Pathology and Orthopaedics of VIMS, Bellary for their support & encouragement to prepare this report.

Author Contributions

Nagarekha Kulkarni – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Nagarekha Kulkarni et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.icaseerportsandimages.com /copyright-policy.php for more information.)

REFERENCES

Large metal retractor left in the abdominal cavity for 27 years after colorectal surgery

Alexandar Alexandrov, Lazar Jelev, Dimitar Nikolov, Lina Malinova, Stanislav Hristov

ABSTRACT

Introduction: Retention of surgical instruments in a patient’s body after surgery is a rare but potentially dangerous error. Case Report: A case of a nearly 27-year long history of a patient with a large metal retractor in the abdominal cavity left accidentally after colorectal surgery is discussed here. Conclusion: In the modern surgical era, reports of surgical instruments left accidentally in the body are rare. A radiographic screening of the high-risk patients at the end of operation is still a valuable tool in the search for possibly retained surgical instruments.

Keywords: Foreign body, Abdominal cavity, Colorectal surgery, Postoperative radiographic screening

********


do:10.5348/ijcri-2013-04-300-CR-9

INTRODUCTION

Retention of foreign bodies in a patient’s is body after surgery is a rare but potentially dangerous error [1]. It happens in 1 of every 1000 to 1500 intra-abdominal operations [2, 3]. Other authors estimate a lower incidence from 1 in 8801 to 1 in 18,760 operations at the non-specialized acute care hospitals [1]. Surgical sponges and instruments are the two basic groups of foreign bodies established [1, 4]. Herewith, we report a long history of a patient ‘wearing’ a large metal retractor in his abdominal cavity.

CASE REPORT

A 76-year-old male patient presented to us with severe unbearable abdominal pain and palpable hard mass in the right-lower quadrant of the abdomen. He gave a past history that in 1979, he was directed to a general surgery department following a recent episode of fresh rectal bleeding. After clinical examination, a rectal carcinoma was suspected. During routine transabdominal surgery performed on December 4, 1979, ulcerated rectal polyps were found, located 45 cm over the anorectal line and were completely removed by resection of the rectum and followed by coloanal anastomosis. The operation took about five hours. There were no complications in the early postoperative period. Soon after the operation, however, abdominal pain appeared, and an unclear abdominal mass was palpated occasionally on the right side. The explanation given by the doctors was that this was probably due to an abdominal hematoma. Because of the persisting symptoms, the patient underwent an abdominal X-ray examination by a portable machine, but no obvious pathology was found. During the following years, the
abdominal pain persisted with varying characteristics of location and intensity. In 2001, on an abdominal X-ray, the doctors spotted a large metal object on the right side of the pelvis. Despite being recommended an operation to remove the object, the patient waited for five more years before he agreed to have surgical intervention. When the patient came to us he had severe abdominal pain. On physical examination he was a moderately overweight with a blood pressure 140/80 mmHg, heart rate 82/min and respiratory rate 18/min. His laboratory examinations were hemoglobin 12.3 g/dL, white blood cell count 9.5x10^3/mm^3, platelets – 320x10^3/mm^3. On radiological examination, X-ray showed a large, clearly seen object of homogenous density located on the right side of the pelvic cavity (Figure 1). On November 9, 2006 as a result of strong, unbearable abdominal pain, the metal object was surgically removed from the abdominal cavity nearly 27 years after the initial operation. The surgical approach was by a typical midline laparotomy and the metal object was removed with ease, because no obvious tissue reaction was found over its surface. It was a large Russian made surgical retractor of Reverdin, measuring 28.5 cm in length, 7 cm in width and had a weight of 270 g. Postoperative recovery was uneventful and an immediate relief of the abdominal pain was noted. In the early and long-term follow-up (5 years) no related problems were noted. We do not have computed tomography (CT) scan or manganetic resonance imaging (MRI) of the patient.

Figure 1: (A) The retractor of Reverdin inside the abdominal cavity (asterisk) seen on a plain radiography of the abdomen, and (B) after its removal from the body.

DISCUSSION

The most benign scenario for retained surgical instruments is when they are established immediately after surgery before complications develop. This is possible by counting the instruments carefully, by manual palpation of the opened cavity or, when necessary, by a postoperative radiograph or CT scan [1, 5, 6]. Despite the hospital standards recommended, emergency surgery operations or unexpected changes in the surgical procedure are associated with a higher risk of retained instruments [1]. An extended stay of the instruments in the body can lead to a number of serious complications–infection and peritonitis, fistula or perforation, bowel obstruction and even death [1, 7]. A common clinical sign of surgical instruments left in the abdominal cavity is the pain [8]. It can be chronic, sometimes unclear, and with changing location because of the free movement of the instruments through the cavity.

The usual duration of retained bodies before their detection and retrieval surgery is several weeks to a few months [1]. However, in the surgical literature there are a few reports of extensive stay of the surgical instrument inside a body cavity—one of the longest known is 30 years [9]. The size of the retained surgical instruments may vary between small metal clips dropped accidentally and spilled in the abdominal cavity [7] to mid-sized dissecting forceps [10], artery forceps [8] and surgical spatula [11] to a large-sized ribbon malleable retractor [12] and retractor of Reverdin, as described in this case.

In literature, there are many documents and guidelines dealing with prevention of retained foreign bodies after surgery [1, 13, 14]. The following summary of these guidelines could be adapted to various practice settings:

1. Application of and adherence to standard counting procedures of instruments.
2. Meticulous visual and manual inspection of the operative field at the end of operation.
3. Obtaining intraoperative and postoperative X-ray in particular situations – after emergency surgery and unexpected changes in the surgical procedure, in obese patients, etc.
4. Suspicion of retained instruments during the early and long-term follow-up in surgical patients with unclear symptoms with following X-ray or CT scan.

CONCLUSION

In the modern surgical era, reports of surgical instruments left accidentally in the body are rare due to increased precautions and maybe underreporting of such cases because of possible legal consequences. The majority of surgical instruments used nowadays are still made of metal, so a radiographic screening of the high-risk patients at the end of operation should be considered. If some unclear symptoms appear later on, a plain X-ray investigation is still a valuable tool in the search for possibly retained surgical instruments.

**********

Acknowledgements

The authors thank Ms. Elena Edward Fadel for the English proofreading of the text.
Author Contributions
Alexandar Alexandrov – Substantial contributions to conception and design, Analysis and interpretation of data. Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published
Lazar Jelev – Substantial contributions to conception and design, Acquisition of data, analysis and interpretation of data. Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published
Dimitar Nikolov – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Lina Malinova – Substantial contributions to conception and design, Acquisition of data, Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published
Stanislav Hristov – Substantial contributions to conception and design, Analysis and interpretation of data. Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Alexandar Alexandrov et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.iJcasereportsandimages.com /copyright-policy.php for more information.)

REFERENCES
Otogenic tetanus: A challenge for anesthetic management

Jyoti V Kulkarni, Anil Shrinivas Joshi, Rashmi Bengali, Suhas Jewalikar

ABSTRACT

Introduction: Tetanus is a disease caused by endotoxins, tetanolysin and tetanospasmin released from Clostridium tetani which affects motor inhibitory neurons. The challenge for anesthesiologist lies in control of autonomic dysfunction and muscle spasticity. Case Report: In this article we have discussed anesthetic management of a 5-year-old boy with otogenic tetanus posted for removal of foreign body in left ear. He was admitted in infectious ward with trismus, fever, muscle spasm and difficulty in swallowing for last four days. He received intramuscular tetanus toxoid, intramuscular immunoglobulin 5000 IU as bolus followed by 2500 IU/day. Intravenous diazepam 6 mg at every three hours and intravenous ceftixime was given. On second day of admission he was posted for removal of foreign body in left ear. Intravenous diazepam and fentanyl were given as premedication and sevoflurane, nitrous oxide and oxygen was used for general anesthesia. During surgery and in postoperative period he developed hypertension and tachycardia, was treated with intravenous labetolol. Conclusion:

In case of tetanus, volatile anesthetic agents can be safely used for surgical procedures like cleaning and debridement of wound, removal of foreign body or incision and drainage of abscess. However, use of nondepolarizing muscle relaxant is advisable. As we used sevoflurane in single case, further study is required for confirmation of its efficacy and safety. Autonomic hyperactivity can be managed with beta-blocker, intravenous labetolol is the drug of choice.

Keywords: Otogenic tetanus, Sevoflurane, Labetolol, Foreign body

**********


**********


INTRODUCTION

Tetanus is an infectious disease caused by anaerobic spore forming bacteria Clostridium tetani [1, 2]. Incidence of tetanus is higher in males than in females [3]. Clinical presentation is due to toxins produced by the organisms, tetanospasmin and tetanolysin. The portals of entry of the bacteria into the body is usually contaminated wound. When a suppurating ear is the only known portal of entry, it is termed otogenic tetanus [4]. Otogenic tetanus is more common in children less than 6 years [4]. Mortality is lower in otogenic tetanus than in other groups [3]. In tetanus, mortality is due to respiratory failure and cardiovascular collapse, associated with autonomic instability [5].
Tetanospasmin inhibits release of neurotransmitter from presynaptic inhibitory neurons resulting in reflex irritability and autonomic hyperactivity [6]. Respiratory failure is secondary to muscle rigidity, reflex muscle spasm and high levels of circulating catecholamine or toxic myocarditis [6]. Parasympathetic over activity leading to bradycardia and sinus arrest is also known to occur in severe cases [6].

For better outcome, these patients should be treated in intensive care unit. Neutralization of toxin load by antitetanus globulin, airway maintenance, eradication of source of toxin, control of muscle spasm and autonomic instability are the goals in treating these patients. No specific protocols are given regarding anesthetic management of patients of tetanus. Deeper plane of anesthesia with paralysed patient is preferred to prevent muscle spasm and hypertensive crisis [2]. Nondepolarizing muscle relaxants can be safely used but higher doses may be needed. Depolarizing muscle relaxants should be used with caution as it may trigger hyperkalemic arrest. Volatile anesthetic agents can be safely used.

Tracheostomy or supraglottic airway is preferred over endotracheal intubation. Autonomic hyperactivity can be managed with beta-blockers or by epidural or intrathecal anesthesia [4]. Our patient was posted for removal of foreign body in ear. We used intravenous diazepam and fentanyl as premedication and anesthesia was given with inhalational agents' sevoflurane, nitrous oxide and oxygen. Intravenous labetolol was used to combat sympathetic over activity.

CASE REPORT

A 5-year-old boy weighing 12 kg was admitted in infectious ward with trismus, difficulty in swallowing, intermittent muscle spasm, fever and purulent discharge from left ear from four days. He was not immunized for tetanus. He was diagnosed as otogenic tetanus. He received intramuscular tetanus toxoid, intravenous immunoglobulin 5000 IU as a bolus dose followed by 2500 IU/day and intravenous cefixime. Intravenous diazepam 6 mg was given every three hours and intravenous midazolam was given 0.5 mg if spasm was not relieved. The ENT examination revealed the presence of foreign body and purulent discharge through left ear. On second day of admission, he was posted for removal of foreign body. He presented with intermittent muscle spasm, his pulse rate was 144/min, blood pressure was 140/90 mmHg. He received intravenous diazepam 6 mg and fentanyl 25 µg as a premedication. He was preoxygenated for 5 minutes and induction was done with nitrous oxide, oxygen and sevoflurane. After complete relaxation, he was intubated with no. 5 plane endotracheal tube. Anesthesia was maintained on nitrous oxide, oxygen and sevoflurane. Left lateral position was given. He developed tachycardia and hypertension, with pulse rate 168/min, blood pressure 160/94 mmHg. Deep plane of anesthesia was achieved with intravenous fentanyl 10 µgm. As tachycardia and hypertension was not controlled intravenous labetolol 3 mg was given. Thereafter his blood pressure was 130/80 mmHg, pulse rate was 124/min. The procedure was completed within 20 minutes. Two pieces of stone 3x2 mm in size were removed. Extubation was uneventful. Patient was observed in post anesthesia care unit. He received intravenous diazepam 6 mg every three hours and midazolam 0.5 mg whenever required. After about couple of hours again he developed tachycardia and hypertension which was controlled by intravenous labetolol. His vitals became normal and no further beta-blocker therapy was required. The child was transferred to ward on next day.

DISCUSSION

Otogenic tetanus is a neurological disorder with spasticity, muscle spasms and autonomic disturbance caused by the neurotoxin-tetanospasmin secreted by Clostridium tetani from an otogenic source [4]. Incubation period of tetanus is three days to three weeks. It is classified into five grades according to presence or absence of five criteria, e.g., lock jaw, incubation period of seven days or less, presence of temperature of 100°F within 24 hours from development of lock jaw, presence of spasms and its period of onset within 48 hours or less. The mortality increases as the grade of severity increases [3]. The endotoxin affects nervous system. It has predilection for inhibitory neurons [2]. It binds to gangliosides and blocks the release of neurotransmitter from presynaptic inhibitory neurons. The loss of inhibitory impulses results in reflex irritability and autonomic hyperactivity. Centrally, transmission along the inhibitory gamma-amino butyric acid (GABA) and glycnergic neurons is interrupted, and at the level of the spinal cord, inhibitory interneurons are blocked. Management includes administration of ant tetanus immunoglobulin, immunization, antibiotics and debridement of the wound, if needed. The objective of human immunoglobulin is to eliminate tetanospasmin that has not invaded the neurons so far [1, 5]. Early treatment with immunoglobulin is critical, because it binds free toxin. However, it does not treat the effects of toxin protected within the neuron or cell body. Treatment of the effects of toxin already within the nervous system is purely supportive [5]. Initial management of muscle spasms involves sedation, isolation of patient in dark room, benzodiazepines, barbiturates, anticonvulsants, narcotics, bacofoen, magnesium sulphate, dantrolene and propofol [2]. Benzodiazepines are often used as first-line treatment as GABA-A agonist thereby functioning as indirect antagonists of the effect of toxin on inhibitory system. Lorazepam has longer duration of action [6, 7]. Midazolam is used as continuous infusion in patients of uncontrolled spasms [6]. Diazepam is preferred as it reduces muscle spasm by its effect on spinal interneuron and gamma motor neuron. It reduces central sympathetic activity [8]. Higher doses may be
needed (10–18 mg/kg) by nasogastric tube in severe cases [8]. In case of failure to control spasm by benzodiazepines, nondepolarizing muscle relaxant is used. Nondepolarizing agents occupy the postsynaptic receptors, preventing acetylcholine neuromuscular transmission by competitive inhibition and producing muscle relaxation. However, since there is heightened efferent neural discharge, generalized tetany markedly increases the requirement for nondepolarizing agents [1, 7]. Neuromuscular blocking drugs with steroid molecule should be avoided in view of prolonged weakness [7]. Vecuronium infusion is free from cardiovascular side effects but may cause little histamine release [1].

Depolarizing neuromuscular blocker succinylcholine should be used with caution, as it may trigger hyperkalemic arrest. This may possibly be related acute renal failure leading to hyperkalemia or myoglobinurina. Dantrolene acts at the level of sarcoplasmic reticulum [6]. Baclofen is administered via the intrathecal route. It diffuses through capillaries of spinal cord and binds to GABA-B receptors in the substantia gelatinosa of dorsal horn to inhibit monosynaptic extensor and polysynaptic flexor transmission [6, 7]. It carries a significant risk of respiratory depression [2]. Volatile anesthetic agents enhance the activity of inhibitory postsynaptic receptors while inhibit excitatory sympathetic channel activity [9]. Volatile anesthetics produce hypnosis, analgesia and inhibit motion, predominantly by acting at the level of the spinal cord. Sevoflurane relieves tetany and allows airway control and ventilation [9]. Supraglottic airway devices may further diminish the need for endotracheal intubation. As most air passes through the nasal passages during mask ventilation, a nasal airway can facilitate ventilation, even in the presence of masseter spasm. Magnesium with its unique property on the neuromuscular junction and sympathetic system has been used to treat both spasms and autonomic dysfunction with limited success [6, 7].

Magnesium reduces autonomic disturbances and spasm [10]. Magnesium blocks catecholamine release from nerves and adrenal medulla [7].

Autonomic dysfunction is the most serious complication of severe tetanus presenting with sustained but labile hypertension, tachycardia, arrhythmia, profuse sweating, pyrexia, increased carbon dioxide, increased catecholamine’s and later on hypotension. These symptoms develop towards the end of first week [6]. Hypotension and bradycardia may also result from brainstem involvement or myocarditis [9]. Autonomic hyperactivity is treated with narcotics which also relieves pain [11]. Labetalol acts by inhibiting uptake of norepinephrine into nerve terminals. It can be helpful along with sedatives and narcotics. We used intravenous fentanyl, midazolam and bolus dose of labetolol but we did not require continuous infusion of labetolol. Epidural blockade is effective in controlling sympathetic over activity and the associated complications [12]. Beta-blockers should be used with caution as they have been implicated in the deaths of some patients with autonomic dysfunction [7]. In treating Clostridium tetani infection, metronidazole is more effective than Penicillin G since it is a GABA antagonist [12]. Even though there is no documented evidence regarding safety of volatile anesthetic agents we used sevoflurane as a sole agent as the procedure is of short duration and in our patient muscle spasm was very well controlled.

CONCLUSION

In case of tetanus, volatile anesthetic agents can be safely used for surgical procedures like cleaning and debridement of wound or incision and drainage of abscess. However, use of nondepolarizing muscle relaxants is advisable. As we used sevoflurane in single case, further study is required for confirmation of its efficacy and safety. Autonomic hyperactivity can be managed with beta-blocker, intravenous labetolol is the drug of choice.

********

Author Contributions

Jyoti V Kulkarni – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Anil Shrivivas Joshi – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Rashmi V Bengali – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article

Suhas Jewalikar – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Jyoti V Kulkarni et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.ijcasereportsandimages.com/copyright-policy.php for more information.)

REFERENCES

1. Paul Firth, John Bastien, Boston, Table #36 PBLD: Tetanus: Anesthetic management during a mass casualty natural disaster SPA 2011.
6. Talaat Abdelmoneim, Lucian K DeNicola, M Yousuf Hasan. Tetanus: Complications and Management in a Paediatric Intensive Care UnitThe Division of Paediatric Critical Care, University of Florida-Jacksonville.
Ambiguous genitalia secondary to a Bartholin’s cyst in a virilized newborn girl with maternal hyperandrogenemia

Swati Dave-Sharma, Christian Castillo, Yolanda Cosme, Alberto Mendoza, Evelyn Erickson

ABSTRACT

Introduction: Bartholin’s gland cysts are rare in neonates. It is a cystic enlargement of the gland from a blockage of one of the Bartholin’s ducts. The duct obstruction could be a result of a genital infection, inflammation or thickened mucus. It is imperative to keep in mind that the presence of a cyst in the genital area can present as ambiguous genitalia requiring careful management and follow-up. Congenital adrenal hyperplasia needs to be ruled out in females presenting with ambiguous genitalia. Case Report: We report a case of a full term newborn from a 28 years old G2P2 mother who presented with ambiguous genitalia. In the delivery room, the physical examination revealed clitoromegaly with a phallus measuring 2.5x1 cm and otherwise normal examination. A bedside transillumination test was positive, indicative of a cyst in the clitoral area. The extensive endocrinological investigations revealed maternal and neonatal hyperandrogenemia, 46XX chromosome and ultrasound evidence of presence of normal female internal genitalia. Clitoral enlargement showed spontaneous regression during the subsequent outpatient examinations. Surgery was performed at one year of age for excision of the cyst. The pathology report of the surgical tissue at the time was reported as a Bartholin’s cyst. Conclusion: Bartholin’s cysts can be responsible for the presentation of ambiguous genitalia in a newborn girl with hyperandrogenemia. A multi-disciplinary approach is necessary for diagnosis and management of the cyst, and to rule out significant conditions like congenital adrenal hyperplasia.

Keywords: Ambiguous Genitalia, Bartholin’s cyst, Virilization, Hyperandrogenemia

**********


**********


INTRODUCTION

Bartholin’s gland cysts are rare in neonates [1]. Embryologically, they are outgrowths of the urogenital sinus, homologous to the bulbourethral glands in the male. The urogenital sinus comes from the cloaca and develops into the bladder, urethral glands, paraurethral glands, vagina, vestibular glands, Bartholin’s glands, and hymen [2, 3]. The function of these glands is to secrete mucus to lubricate the vagina. A Bartholin’s gland cyst is a cystic enlargement of the gland from a blockage of one of the Bartholin’s ducts. The duct obstruction could be a result of a genital infection, inflammation or thickened mucus. A painless mass in the vulva is the most common presenting sign.
Recurrent Bartholin’s gland abscesses can be treated by surgical excision of the gland and duct [1]. Virilization of urogenital sinus is the known cause of ambiguous genitalia in 46XX females with congenital adrenal hyperplasia (CAH). The degree of exposure to androgens determines the degree of urogenital virilization. Females can be born with mild clitoromegaly to male type penile urethra in patients with CAH [4].

Possible causes of maternal hyperandrogenemia causing virilization in both the mother and the newborn are polycystic ovarian syndrome, hyper-reactio luteinalis and maternal pregnancy luteoma. Luteomas are usually asymptomatic benign hyperplastic ovarian lesions of pregnancy that secrete androgens in 25% of cases [5]. A luteoma of pregnancy is reported to be the most common cause of maternal virilization during pregnancy. They are hypothesized to either arise from luteinized stromal cells responding atypically to hCG stimulation, or to be luteinized theca/granulosa cells. Pregnancy luteomas have been reported to undergo spontaneous postpartum regression at approximately three months after delivery.

CASE REPORT

A full-term newborn weighing 3.5 kg was born from a 28-year-old G2P2 mother by a normal spontaneous vaginal delivery without any complications. The prenatal course was uneventful, and the family medical history was unremarkable, including the mother’s first born who was a healthy boy. There was no history of alcohol, smoking or any medication during the mother’s pregnancy. The fetal ultrasound was normal.

In the delivery room, the physical examination revealed a newborn with ambiguous genitalia. A phallus was observed measuring 2.5 cm. There were absent gonads in the urogenital folds and the normal appearance of a vaginal introitus (Figures 1–3). Initial vital signs showed normal heart rate 145/min, respiratory rate 52/min and blood pressure 89/48 mmHg. No other abnormalities were noted. The patient started feeding well and the nurses reported meconium passage four hours after birth and normal urine. An initial metabolic profile included serum sodium 142 mmol/L (normal limits 137–147 mmol/L), potassium 5.6 mmol/L (normal limits 3.6–5.2 mmol/L), and CO2 23 mmol/L (normal limits 22–32 mmol/L).

The endocrinologist was consulted who requested 17-hydroxyprogesterone, testosterone, estradiol, a karyotype and a pelvic ultrasound to evaluate the type of internal genitalia. A chromosomal analysis revealed a 46XX female karyotype. A pelvic ultrasound showed normal uterus and ovaries. The urology service was consulted and reported the findings of female type genitals with a normal vaginal opening, an enlarged clitoris with a small opening at the base of the clitoris with a white milky discharge expressed when pressure was applied to it, a thickened labia, and a vagina and urethra in the normal anatomical position. Gender assignment was made as female. The results of the testosterone and estradiol levels were reported high for the patient’s age and gender. Her initial testosterone level was 98 ng/dL (normal limits <24 ng/dL in newborn 1–10 days of age) and estradiol levels were 137 pg/dL (normal limits <16 pg/mL for pre-pubertal females). The newborn screening results were reported to be within normal limit.

While interviewing the mother in the newborn nursery, we noticed that the mother had hirsutism evident on the neck and face (Figure 4). She denied use of any hormonal treatment during pregnancy. As a result, blood tests were requested for the mother, which resulted in normal FSH and LH but high testosterone level of 166 ng/dL (normal limits 15–90 ng/dL).

A follow-up examination of the newborn, two weeks later, in an outpatient clinic showed a decrease in the size of the clitoris secondary to a partial regression of a cyst (Figure 5). At three months of age, her testosterone levels decreased to 40.13 ng/dL (normal limits for 1–3 month old females <17 ng/dL). Maternal laboratory tests performed three months postpartum resulted in normal LH, FSH and testosterone levels (testosterone 37 ng/dL).

Subsequently, at six months of age the testosterone was suppressed to <10 ng/dL (normal limits <13 ng/dL). The outpatient examination by urologist was positive for the clitoris of the infant as enlarged and approximately 2.5 cm with a yellowish discharge. As a result, a marsupialization was performed at one year of age. The pathology report of the surgical tissue at the time was reported as a Bartholin’s cyst.

Retrospectively, the diagnosis of a luteoma of pregnancy was considered due to the clinical presentation of the mother and her virilized infant, especially due to the normalizing of the mother’s hormonal levels three months postpartum without any intervention.

Figure 1: Patient’s genitalia at initial presentation.
DISCUSSION

Ambiguous genitalia is a disorder of sexual differentiation, where the external genitals do not have the typical appearance of either a boy or a girl. The genetic sex of a child is determined at conception. Normally, if a child inherits an X chromosome from both parents the genetic sex will be female, and if a child inherits one X chromosome from the mother and a Y from the father, the genetic sex will be male. The development of internal and external genitalia depends on the interplay of several hormonal stimulations or lack of stimulation during intrauterine life. If the process that causes this fetal tissue to become “male” or “female” is disrupted, ambiguous genitalia can develop. This genitalia makes it difficult to classify the infant as male or female.

Usually, ambiguous genitalia in genetic females (XX) may show an enlarged clitoris that looks like a small penis. The urethral opening can be along, above, or below the surface of the clitoris. The labia may look like a scrotum due to rugosity and hyperpigmentation. Depending on the degree of virilization, a female infant may look like a female with an enlarged clitoris or a fully virilized male with an urethra opening at the tip of the phallus, giving a normal penile appearance but an absence of palpable gonads. Prader staging system is commonly used for staging the virilization in females. Stage I: clitoromegaly without labial fusion, Stage II: clitoromegaly and posterior labial fusion, Stage III: greater degree of clitoromegaly, single perineal urogenital orifice, and almost complete labial fusion, Stage IV: increasingly phallic clitoris, urethra-like urogenital sinus at base of clitoris, and complete labial fusion, Stage V: penile clitoris, urethral meatus at tip of phallus and scrotum-like labia (appear like males without palpable gonads) [6]. Ambiguous genitalia in a genetic male (XY) may present from completely female-looking genitalia to under-virilized male genitalia.
Causes of ambiguous genitalia in a genetic female are related to an endogenous or exogenous excess of androgens during intrauterine life. Congenital adrenal hyperplasia is an autosomal recessive condition, a family of monogenic inherited disorders of adrenal steroidogenesis most often caused by enzyme 21-hydroxylase deficiency (21-OHD). In the classic forms of CAH (simple virilizing and salt wasting), androgen excess causes external genital ambiguity in newborn females and progressive postnatal virilization in males and females [4]. Patients in some cases are exposed to male hormones prenatally either due to chemicals or maternal conditions such as androgen producing tumors causing androgenization of internal and external genitalia. Maternal hyperandrogenemia can be due to ovarian tumors, polycystic ovarian syndrome (PCOS) and a luteoma of pregnancy in rare cases [7]. Ambiguous genitalia is a true neonatal emergency and other pediatric specialties like genetics, urology and endocrinology need to be involved. Congenital adrenal hyperplasia should always be considered and ruled out. Sex should not be assigned until chromosomal results are confirmed.

A luteoma of pregnancy is usually unsuspected clinically and identified incidentally during a cesarean section or tubal ligation in the puerperium. It is a benign tumor that produces androgens and usually regresses postpartum spontaneously [7]. We suspect that the hyperandrogenemia causing hirsutism in the mother and virilization in the female newborn was most likely due to a luteoma of pregnancy. The mother denies previous history of any drug that can potentially alter the sex hormones. Her ultrasound of the ovaries and hormonal workup was not conclusive for PCOS. Her testosterone levels were significantly higher than normal at the time of labor and regressed eventually in the first few months postpartum spontaneously without any intervention.

Embryologically, Bartholin’s glands are outgrowths of the urogenital sinus, homologous to the bulbourethral glands in the male. The urogenital sinus comes from the cloaca and develops into the bladder, urethral glands, paraurethral glands, vagina, vestibular glands, Bartholin’s glands, and hymen [3]. The function of these glands is to secrete mucus to lubricate the vagina. Anatomically, Bartholin’s glands (greater vestibular glands) are homologues of the Cowper’s glands (bulbourethral glands) in males. At puberty, these glands begin to function, providing moisture for the vestibule. The Bartholin’s glands develop from buds in the epithelium of the posterior area of the vestibule. The glands are located bilaterally at the base of the labia minora and drain through 2–2.5 cm long ducts that empty into the vestibule. The glands are usually the size of a pea and rarely exceed 1 cm. They are not palpable except in the presence of disease or infection. Obstruction of the distal Bartholin’s duct may result in the retention of secretions, with resultant dilation of the duct and formation of a cyst. The cause of ductal obstruction is not known; however, it may have occurred secondary to the enlargement caused by the stimulation of sex hormones as was speculated in this case. The cyst may become infected, and an abscess may develop in the gland. The treatment of a Bartholin’s duct cyst depends on the patient’s symptoms. An asymptomatic cyst may require no treatment, but symptomatic Bartholin’s duct cysts and gland abscesses require drainage. Unless spontaneous rupture occurs, an abscess rarely resolves on its own [8, 9].

CONCLUSION

In our patient, a Bartholin’s cyst was responsible for the presentation of ambiguous genitalia in a newborn girl with hyperandrogenemia. The patient’s hyperandrogenemia was secondary to maternal hyperandrogenemia. Ambiguous genitalia must always be considered a medical and psycho-social emergency. A multi-disciplinary approach is necessary for diagnosis and management. A simple bedside test, such as a transillumination test, can help decrease the latency in diagnosis.

**********

Author Contributions

Swati Dave-Sharma – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published
Christian Castillo – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published
Yolanda Cosme – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published
Evelyn Erickson – Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Swati Dave-Sharma et al. 2012; This article is distributed under the terms of Creative Commons attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.icasereportsandimages.com /copyright-policy.php for more information.)
REFERENCES

Unusual serpentine supravascular hyperpigmentation during chemotherapy treatment

Houda Mouzound, Sihame Lkhouyaali, Saber Boutayeb, Hassan Errihani

CASE REPORT

A 54-year-old female patient diagnosed for inoperable colic adenocarcinoma with multiple liver metastases in January 2011. She was treated by first line fluorouracil and irinotecan-based chemotherapy in combination with bevacizumab. After three cycles of chemotherapy, a good response to treatment were observed and the patient did not show cutaneous toxicity, the treatment was continued. Two days after the seventh cycle, the patient noticed for the first time asymptomatic pigmentation retracing venous streak of right and left arms, from forearms to shoulders. Clinical examination revealed serpiginous hyperpigmented streaks along the course of the superficial veins (Figure 1 A). There were no apparent leakages of medical agents in surrounding skin and no other mucocutaneous abnormalities. No history of extravasation or phlebitis preceded the hyperpigmentation. No history of extravasation or phlebitis preceded the hyperpigmentation. For this patient, the chemotherapy was suspended and no other treatment was added. After two weeks, we noticed remarkable reduction in hyperpigmented lesions. (Figure 1B) Fluorouracil was replaced by capecitabine. Two months later, this complication was completely resolved.

DISCUSSION

Serpentine supravascular hyperpigmentation was first described in 1976 by Hrubesky as an uncommon side effect of intravenous fluorouracil [1]. Other chemotherapeutic agents, such as vinorelbine, fotemustine, and docetaxel, have also been found to cause serpentine supravascular hyperpigmentation [2]. In a recent study, skin hyperpigmentation occurred in 26% of patients treated by fluorouracil. However, linear hyperpigmented streaks over the arm veins used for injections without previous erythematosus changes have rarely been reported [3]. Its exact mechanism of pigment induction is unknown [4]. Some hypotheses suggest that these cytotoxic drugs cause loss of endothelial integrity. This would permit the leakage of agent from the vessel to the overlying epidermis where it interferes with melanogenesis thus resulting in hyperpigmentation [2, 4]. No specific treatment is recommended. Pigmentation promptly subsides once the offending drug is stopped [4].
CONCLUSION

Serpentine supravenous hyperpigmentation can be prevented by avoiding peripheral infusion of some chemotherapy agents, especially fluorouracil, by using permanent central-infusion catheter or suggesting oral chemotherapy if possible.

********


********

doi:10.5348/ijcri-2013-04-303-CI-12

********

Acknowledgements
We acknowledge Professor Youssef Bakri for his critical review.

Author Contributions
Houda Mouzount – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Shame Lkhouyaali – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Saber Boutayeb – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Hassan Errihani – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© Houda Mouzount et al. 2013; This article is distributed under the terms of Creative Commons Attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.ijcasereportsandimages.com/copyright-policy.php for more information.)

REFERENCES