EDORIUM Journals
www.edoriumjournals.com

CLINICAL IMAGES OPEN ACCESS

Differentiation of pulmonary artery sarcoma from pulmonary embolus utilizing 128-slice dual source prospective cardiac-gated computed tomography scan

Antonino Germana, Nathan C Hawkes, Scott A Alexander, Gilbert E Boswell

ABSTRACT

Abstract is not required for Clinical Images

CLINICAL IMAGES OPEN ACCESS

Differentiation of pulmonary artery sarcoma from pulmonary embolus utilizing 128-slice dual source prospective cardiac-gated computed tomography scan

Antonino Germana, Nathan C Hawkes, Scott A Alexander, Gilbert E Boswell

CASE REPORT

A 54-year-old female with no significant past medical history presented with progressive dyspnea with exertion. Transthoracic echocardiogram was significant for a mass lesion and a pressure step-up from 6–55 mmHg at the origin of the right pulmonary artery (PA). Sarcoma was diagnosed on subsequent cardiac magnetic resonance imaging (MRI) based upon contrast enhancement of the mass (Figure 1) [1]. Thin section Flash® non-contrast, first pass post-contrast, and delayed adaptive sequential images were obtained to stage the disease and determine extent of involvement (Somatom Definition Flash®, Siemens Healthcare, Forchheim, Germany). Contiguously soft tissue-filled PAs were found to enhance with contrast (Figure 1). These findings are consistent with sarcoma and not embolus, which guided the patient toward neoadjuvant chemotherapy with adriamycin/ifosfamide and attempt at curative resection [2]. Subsequent pathologic examination confirmed a sarcoma with leiomyosarcomatous differentiation (Figure 2).

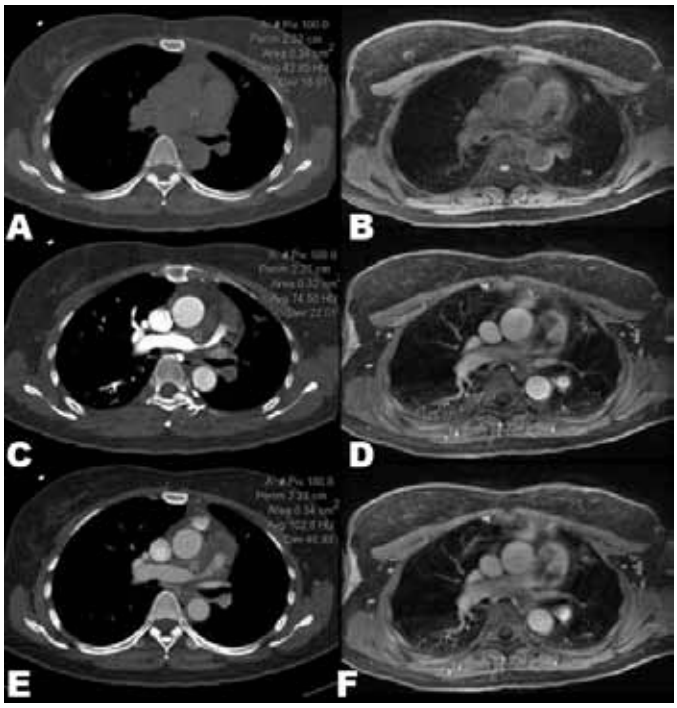

Figure 1: Axial (A) Flash® non-contrast, (B) First pass post-contrast, (C) Dual Source adaptive sequential images demonstrating an intraluminal mass with Hounsfield units measuring 42.8, 74.5, and 102.8, consistent with enhancement. Axial, (D) non-contrast, (E) first pass, and (F) delayed LAVA magnetic resonance demonstrates an enhancing proximal pulmonary artery mass lesion consistent with pulmonary artery sarcoma.

DISCUSSION

Primary pulmonary artery sarcoma is a rare malignancy with poor prognosis that frequently presents with symptoms of PA obstruction, pulmonary arterial hypertension, and right ventricular failure [3]. More frequently seen extensive thromboembolic disease presents similarly, which can delay definitive imaging diagnosis and management. Magnetic resonance imaging (MRI) is highly specific for identifying PA sarcomas because the tumor enhances with gadolinium contrast more than bland thrombus [1]. Chest computed tomography (CT) scan findings such as a low-attenuation filling defect occupying the entire luminal diameter of the main or proximal PA, an expansion of any segment of the pulmonary artery with an extensive intraluminal filling defect, or extraluminal extension can also help

Antonino Germana[1], Nathan C Hawkes[1], Scott A Alexander[1], Gilbert E Boswell[1]
Affiliations: [1]MD, Naval Medical Center San Diego.
Corresponding Author: Dr. Antonino Germana, MD, MPH, Institution: Naval Medical Center San Diego, POC: 22 Area Branch Medical Clinic, Camp Pendleton, CA; Ph: 760-725-2969; Email: germana.antonino@gmail.com

Received: 10 April 2013
Accepted: 23 April 2013
Published: 01 February 2014

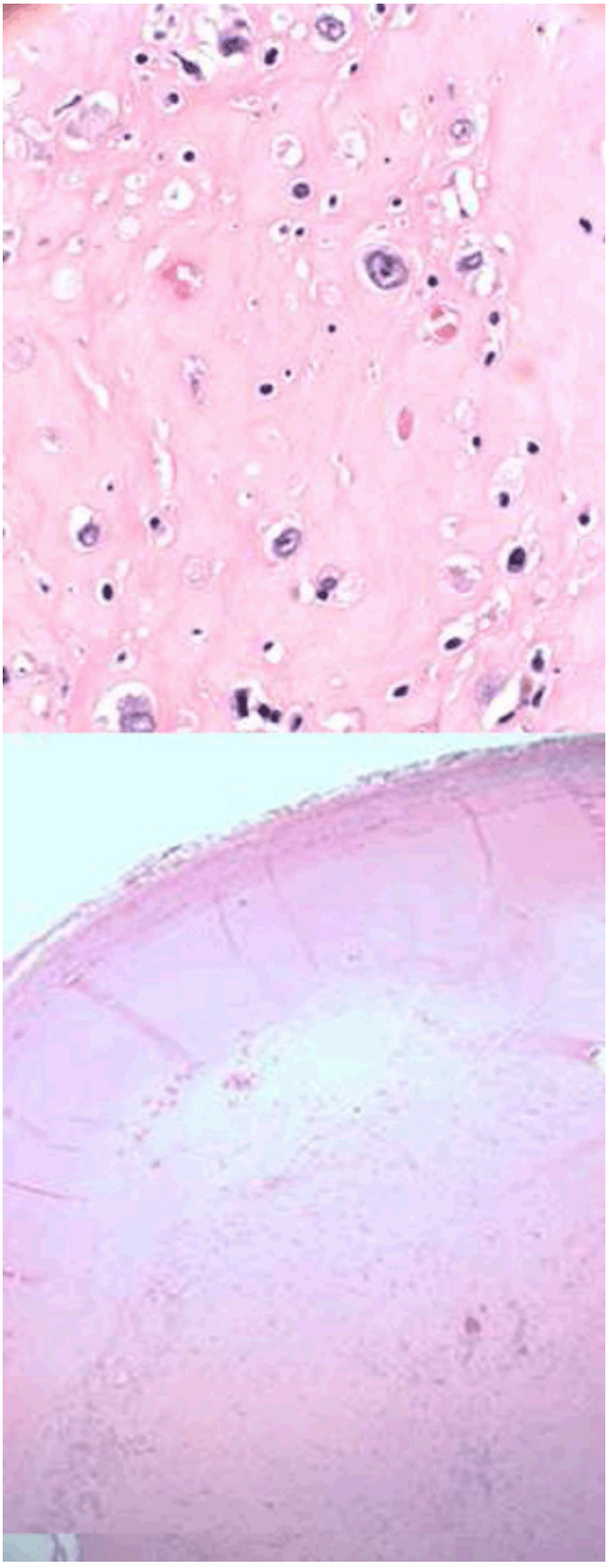

Figure 2: (A) Pulmonary artery sarcoma with leiomyosarcomatous differentiation and treatment effect (H&E stain, x100), (B) Pulmonary artery mass lesion in cross-section demonstrating complete occlusion of the vessel (H&E stain, x400).

differentiate pulmonary artery sarcomas from pulmonary artery thromboembolism [4]. As much as delayed phase contrast enhancement has helped in differentiating between benign and malignant mass lesions, visualization of a low attenuation filling defect within a pulmonary artery on contrast-enhanced cardiac CT studies can further suggest malignancy, such as pulmonary artery sarcoma, if the lesion demonstrates enhancement throughout the delayed phase.

CONCLUSION

New computed tomography imaging techniques such as 128-slice dual source computed tomography with prospective technique can optimize evaluation of a pulmonary artery mass and provide concomitant thin-section evaluation of the intra- and extravascular spaces, which can be critical in pre-planning for neoadjuvant chemotherapy and attempt at curative resection. To the best of our knowledge, we are first to present a case of pulmonary artery sarcoma that demonstrates enhancement throughout the delayed phase on prospective gated cardiac computed tomography. This finding may further differentiate pulmonary artery sarcoma instead of chronic thromboembolism.

How to cite this article

Germana A, Hawkes NC, Alexander SA, Boswell GE. Differentiation of pulmonary artery sarcoma from pulmonary embolus utilizing 128-slice dual source prospective cardiac-gated computed tomography scan. International Journal of Case Reports and Images 2014;5(2):186–188.

doi:10.5348/ijcri-2014-02-469-CL-21

****

Author Contributions

Antonino Germana – 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

Nathan C Hawkes – Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Scott A Alexander – Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Gilbert E Boswell – 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.

Copyright

REFERENCES

1. Kauczor HU, Schwicket HC, Mayer E, Wilhelm K, Moll R, Schweden F. Pulmonary artery sarcoma mimicking chronic thromboembolic disease: Computed tomography and magnetic resonance imaging findings. Cardiovasc Intervent Radiol 1994 Jul-Aug;17(4):185–9.
2. Blackmon SH, Rice DC, Correa AM, et al. Management of primary pulmonary artery sarcomas. Ann Thorac Surg 2009 Mar;87(3):977–84.
3. Cox JE, Chiles C, Aquino SL, Savage P, Oaks T. Pulmonary artery sarcomas: A review of clinical and radiologic features. J Comput Assist Tomogr 1997 Sep-Oct;21(5):750–5.
4. Yi CA, Lee KS, Choe YH, Han D, Kwon OJ, Kim S. Computed tomography in pulmonary artery sarcoma: Distinguishing features from pulmonary embolic disease. J Comput Assist Tomogr 2004 Jan-Feb;28(1):34–9.

Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals

Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission

We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?

In less than 10 words - we give you what no one does.

Vision of being the best

We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services

We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review

All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review

All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version

Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status

From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks

You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks

After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Mentored Review Articles (MRA)

Our academic program "Mentored Review Article" (MRA) gives you a unique opportunity to publish papers under mentorship of international faculty. These articles are published free of charges.

Most Favored Author program

Join this program and publish any number of articles free of charge for one to five years.

Favored Author program

One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program

Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence

We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...

We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

Edorium Journals: On Web

Browse Journals

CONNECT WITH US