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Murat Bakacak, Salih Serin, Aykut Urfalıoğlu, Mehmet Akif Sarıca

ABSTRACT

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Case Report: We report a case of a 29 year-old patient with a singleton pregnancy of 38 weeks, with a giant sacrococcygeal teratoma of 20x18 cm in the sacrococcygeal zone. The infant was successfully delivered by classical cesarean section.

Conclusion: It is quite important to diagnose sacrococcygeal teratomas in the early weeks of pregnancy and to monitor prenatal management and prenatal complications to be able to determine the mode and place of delivery. When planning delivery, the least traumatic method should be preferred.

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CASE REPORT

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Keywords: Sacrococcygeal teratoma, C-section, Delivery, Fetus, Prenatal diagnosis

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INTRODUCTION

Teratomas, which are mostly observed in the sacrococcygeal zone in the fetus, are the most common neoplasia in the newborn [1]. The prevalence rate of this disorder is 1: 40,000 live birth. The clinical significance of (SCT) results from its concurrence with other pathologies, thereby increasing prenatal and perinatal mortality and morbidity [2]. Mortality and morbidity rates are relatively high in patients suffering from SCT as a result of high output heart failure, polyhydramnios, hydrops, preterm delivery, anemia, and tumor rupture [3]. SCT can be easily diagnosed in the prenatal period due to ultrasonographic development in recent years [4]. SCT is diagnosed in the early period in the form of a cystic, solid or mixed mass extending from the sacral zone to the perineum or hip [5]. Ultrasonography is valuable in monitoring the size of the tumor, early diagnosis of complications, and in the determination of the most favorable time and method of delivery as well as prenatal diagnosis [4].

In this study, a 29-year-old patient presented with a singleton pregnancy of 38 weeks, with a giant sacrococcygeal teratoma of 20x18 cm in the sacrococcygeal zone and subsequent delivery of the infant by classical cesarean section.

CASE REPORT

A 29-year-old Gravida 2, Parite 1 was referred to our clinic with the pre-diagnosis of intra-uterine fetal tumor.

The pregnancy was calculated as 38 weeks according to the date of her last menstrual period. Antenatal follow-up had not been regular. No abnormality was observed in the medical history of her previous child.

Ultrasonographic examination of the patient showed an intrauterine, single and alive fetus in transverse presentation with biometry compatible with 38 weeks. In the fetus, a heterogeneous mass was observed with a smooth surface, extending from the sacral zone to the perineum, with solid and cystic zones of 20x18 cm, and no intra-abdominal extension (Figure 1). Cesarean delivery under regional anesthesia was planned after the consideration of the complications that might arise during the removal of the fetus.

Combined spinal-epidural anesthesia (CSE) was selected as the cesarean delivery anesthesia. After block application was confirmed, surgery was started.

Taking into account the dimension of the fetal mass, a mid-line incision under the belly was applied to the abdomen, and a longitudinal incision was applied to the uterus in order to decrease the risk of rupturing the tumor. The head of the fetus was turned towards the opening and the fetus was delivered without complications with a mean APGAR score of 9-10. In the examination of the newborn, a mass of approximately 20x22x22 cm with a smooth surface and prominent venous congestion was detected in the fetal perineum (Figure 2). Sacrococcygeal teratoma was considered as a result of the localization and appearance of the mass. In the magnetic resonance imaging (MRI), which was applied in the postnatal period, the mass was observed arising from the sacrococcygeal region in the sagittal imaging and the mass had hypointense solid areas and hyperintense cystic septations on the T2-sequence (Figure 3). The mother was discharged from the hospital on postoperative day-2. The newborn was admitted to the pediatric surgery clinic for an operation.

Figure 2: View of the mass in the newborn.

Figure 3: T2-sequence of the magnetic resonance imaging scan of the mass applied in the postnatal period.

Figure 1: Heterogeneous mass with a smooth surface, extending from the sacral zone to the perineum.

DISCUSSION

Although teratomas, which are the most common congenital tumors, may be observed in different parts of the body, they are generally located in the sacrococcygeal zone at reported rates of approximately 50% [6]. As a result of ultrasonographic developments in recent years, sacrococcygeal teratoma is easily diagnosed in the antenatal period [7, 8]. In ultrasonography examination, a mass in cystic, solid or mixed form including both components, is observed with different echogenicity according to the content and sometimes showing intra-abdominal and pelvic extension, present especially in the sacral zone. In addition, it can also define the relationship between vascular structures and fetal circulation and can differentiate SCT from meningocele by demonstrating the SCT vascular structures in the mass during Doppler examination [5, 9].

Large vascular structures in SCT and the development of arteriovenous shunts increase certain prenatal complications such as high output heart failure, fetal hydrops, polyhydramnios, and cardiomegaly [8].

Diagnosis of SCT in the prenatal period is significant for prenatal management, prenatal follow-up and planning of the delivery method. In vaginal delivery, death may occur as a result of serious dystocia and bleeding originating from a large vascular tumor. Vaginal route delivery was reported in 8 of 10 patients, but it was also noted that cystic tumor aspiration developed in one case [10]. Although vaginal delivery is possible in sacrococcygeal teratomas <5 cm and which do not include additional abnormalities, cesarean delivery is preferred for lesions >5 cm because of dystocia or hemorrhage risks [11]. Chuileannain et al. published two cases in which classical cesarean section procedure was applied to the patients, four cases in which sub-uterine segment cesarean procedure was applied, and one case in which delivery was realized through the vaginal tract, and it was stated that perinatal death was observed only in the case in which vaginal delivery was preferred [12]. On the other hand, Kay et al. reported vaginal deliveries without complication after prenatal percutaneous drainage in two cases with cystic sacrococcygeal teratomas, and percutaneous needle drainage was reported to be a potential alternative to cesarean delivery [13]. As Hoehn et al. stated, cesarean delivery should be preferred in cases with large tumors in order to avoid dystocia, tumor rupture, hemorrhage and traumatic delivery. Nevertheless, it should be remembered that difficulties may be encountered even in cesarean section. It is well-known that extensive hysterotomy applied due to a large teratoma, will increase morbidity [14]. This current case, cesarean section was applied since dystocia might occur due to the sacrococcygeal tumor having a large volume, and a classical uterine incision was preferred to prevent teratoma rupture.

Since SCTs are generally diagnosed via ultrasonography in the prenatal period, intrauterine cyst

aspiration, open fetal surgery, radiofrequency ablation method and thermoregulation are alternative options in the treatment. However, there are varying success rates of these operations, and more comprehensive studies are needed on those subjects [11].

Specialist physicians in the fields of gynecology, pediatrics and pediatric surgery should be present in the centers where the deliveries of patients with SCT will be performed in order to create a multi-disciplinary team approach [6].

CONCLUSION

In conclusion, diagnosis of sacrococcygeal teratoma in the early weeks of pregnancy may contribute to prenatal management, follow-up of prenatal complications and determination of the mode and place of delivery. When the delivery is planned, the least traumatic method should be preferred for the delivery.

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Author Contributions

Murat Bakacak – 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

Salih Serin – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published

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

Mehmet Akif Sarıca – Acquisition of data, 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.

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REFERENCES

1. Swamy R, Embleton N, Hale J. Sacrococcygeal teratoma over two decades: Birth prevalence, prenatal diagnosis and clinical outcomes. *Prenat Diagn* 2008 Nov;28(11):1048–51.
2. Avni FE, Guibaud L, Robert Y, et al. MR imaging of fetal sacrococcygeal teratoma: Diagnosis and assessment. *AJR Am J Roentgenol* 2002 Jan;178(1):179–83.
3. Koken G, Yilmazer M, Sahin FG. Fetal sakrokoksigeal teratom: Prenatal tani ve yönetim. *st Tip Fak Derg* 2006;69:83–6.
4. Rusen A, Yaprak E, Aydin Y. Fetal Sakrokoksigeal Teratom Prenatal Tani ve Yönetimi; Olgu Sunumu. *Ankara Üniversitesi Tıp Fakültesi Mecmuası* 2002;55:101–4.
5. Sugitani M, Morokuma S, Hidaka N, et al. Three-dimensional power Doppler sonography in the diagnosis of a cystic sacrococcygeal teratoma mimicking a meningomyelocele: A case report. *J Clin Ultrasound* 2009 Sep;37(7):410–3.
6. Kazandi M, Akman L, Sahin Ç. Huge fetal sacrococcygeal teratoma: Antenatal and postnatal management. *Ege Journal of Medicine* 2011;50(3):213–6.
7. De Backer A, Madern GC, Hakvoort-Cammel FG, Haentjens P, Oosterhuis JW, Hazebroek FW. Study of the factors associated with recurrence in children with sacrococcygeal teratoma. *J Pediatr Surg* 2006 Jan;41(1):173–81.
8. Makin EC, Hyett J, Ade-Ajayi N, Patel S, Nicolaides K, Davenport M. Outcome of antenatally diagnosed sacrococcygeal teratomas: Single-center experience (1993–2004). *J Pediatr Surg* 2006 Feb;41(2):388–93.
9. Chen CP, Shih JC. Prenatal visualization of the vasculature of fetal sacrococcygeal teratoma by three-dimensional color power angiography. *Ultrasound Obstet Gynecol* 2002 Dec;20(6):636–7.
10. Brace V, Grant SR, Brackley KJ, Kilby MD, Whittle MJ. Prenatal diagnosis and outcome in sacrococcygeal teratomas: A review of cases between 1992 and 1998. *Prenat Diagn* 2000 Jan;20(1):51–5.
11. Hedrick HL, Flake AW, Crombleholme TM, et al. Sacrococcygeal teratoma: Prenatal assessment, fetal intervention, and outcome. *J Pediatr Surg* 2004 Mar;39(3):430–8.
12. Chuileannain FN, Woodrow N, de crespigny L. Prenatal diagnosis and management of sacrococcygeal teratoma. *Aust N Z J Obstet Gynaecol* 1999 Nov;39(4):497–501.
13. Kay S, Khalife S, Laberge JM, Shaw K, Morin L, Fageole H. Prenatal percutaneous needle of cystic sacrococcygeal teratomas. *J Pediatr Surg* 1999 Jul;34(7):1148–51.
14. Hoehn T, Krause MF, Wilhelm C, Lattermann U, Rueckauer KD. Fatal rupture of a sacrococcygeal teratoma during delivery. *J Perinatol* 1999 Dec;19(8 Pt 1):596–8.

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