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SACROCOCCYGEAL MATURE CYSTIC TERATOMA IN A 35-YEAR-OLD FEMALE

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Abstract:

Sacrococcygeal cystic teratoma [SCT] is a rare congenital tumor of the base of the spine that affects neonates and infants. This abstract provides a concise overview of SCT and summarizes its clinical presentation, diagnostic modalities, management strategies, and outcomes. SCT is a tumor of a diverse nature. It may have variable histological components, including all three germ cell layers. It is diagnosed using prenatal ultrasound. It may present as a life-threatening condition, such as a mass effect, hemorrhage, or malignant transformation. A prenatal diagnosis plays a key role in SCT management. A multidisciplinary approach is required to treat SCT. Complete surgical excision is the primary treatment goal. The surgical approach is meticulously crafted according to tumor size, location, and adjacent structure involvement. Most SCT have favorable prognosis. Certain risk factors such as size, malignant potential and premature birth can influence outcomes.

Keywords: *Sacrococcygeal cystic teratoma, sacrococcygeal neoplasm, congenital tumor*

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INTRODUCTION:

Sacrococcygeal teratomas [SCT] arise from pluripotent embryonic germ cell layers in the fetal coccyx [1]. Malignant germ cell tumors account for approximately 3–4% of all neoplasms occurring in individuals under the age of 15 years. These tumors can arise in various locations, including the ovaries, testes, lower back, chest, brain, and abdomen [2]. These tumors typically present as palpable masses in the sacral region during infancy, and are sometimes accompanied by neural tube defects. SCT exhibits a higher occurrence among females, with malignant variants being more frequently observed in males [3]. In adults, this condition is highly infrequent, with fewer than hundred documented cases in the literature, and is even more rarely observed in males [4]. It occurs in approximately one in every 35,000 to 4,000 newborns, and its course relies on appropriate management [5]. The majority of these tumors are benign, with a malignancy rate of only 1%. However, the risk of malignancy increases with age [6].

Case Presentation:

A 35-year-old female presented with a gross mass in the sacrococcygeal region that prompted medical evaluation. On clinical examination, a palpable mass was identified in the sacrococcygeal region. Radiographic studies revealed a mass consisting of two fragments, with a larger piece measuring approximately 80x60x2.0 cm and a smaller fragment measuring 10x2.0x10 cm. The larger fragment was stained green, and serial slicing revealed a fibro fatty cut surface. The patient underwent surgical removal of the sacrococcygeal mass and the specimen was completely resected and sent for histopathological examination.

Microscopic examination of the tissue sections revealed an admixture of haphazardly arranged mature tissues originating from different germ layers. Streaks and islands of dermal tissue, with small pools of keratin and adnexal elements, were observed. Pools of keratin and stratified squamous epithelium were observed in other regions. The specimen also contained mature glial tissue, adipose tissue, cuboidal and mucinous elements, and blood vessels. Importantly, no immature components were identified and there was no evidence of granulomatous or neoplastic processes. Based on the histological findings, the diagnosis was established as "Sacrococcygeal Mass Mature Cystic Teratoma." This case highlights the occurrence of a mature cystic teratoma in the sacrococcygeal region in a 35-year-old female. Early diagnosis and surgical intervention are crucial for successful management of such tumors. Histopathological examination plays a pivotal role in confirming the benign nature of the lesion, guiding appropriate treatment, and ensuring a favorable prognosis.

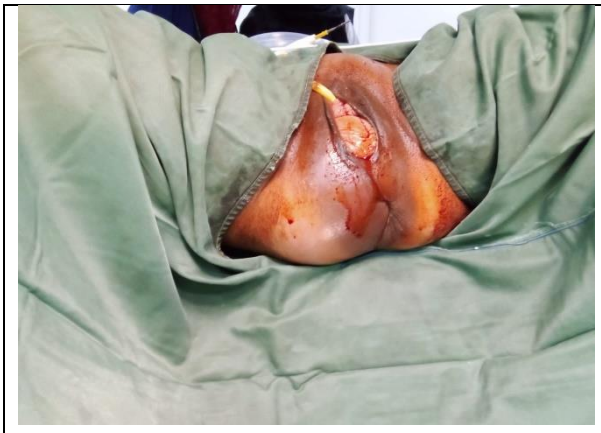

Figure 1

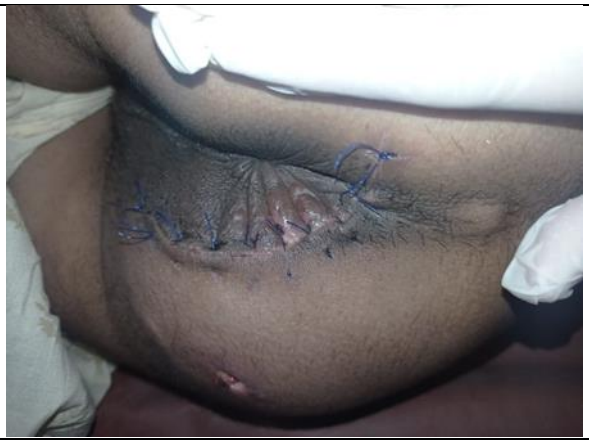

Figure 2

DISCUSSION:

The initial description of a teratoma case dates back to 1863, when Virchow documented it [7]. Although sacrococcygeal teratomas [SCT] are uncommon tumor [8], they are most frequently encountered in newborns. The size of the SCTs ranges up to11 cm [9]. Generally, cystic teratomas tend to manifest with no symptoms, and as a result, the diagnosis is frequently incidental and discovered during radiographic examinations [10]. SCT should be included in the list of potential differential diagnoses for pelvic masses [11] and presacral masses in adults [12]. The presence of prolonged perianal swelling in adults should trigger the suspicion of sacrococcygeal teratoma [13]. The occurrence of a solitary vaginal paraganglioma [14], intraspinal extension in SCT [15], ocular structures

within an ovarian mature cystic teratoma [16], anal canal duplications associated with sacrococcygeal teratoma of Altman's Type IV [17], and heterotopic brain tissue in the sacrococcygeal region [18] are rare. The scarcity of such cases results in a paucity of available evidence in the literature concerning their management [19]. There are four types of SCT, the majority of which are benign, with only a small percentage [approximately 1-2%] undergoing malignant transformation, giving rise to squamous cell carcinoma, adenocarcinoma, sarcoma, and other malignancies. The most common sacrococcygeal malignancies include immature and mature teratomas [20].

Ultrasound is the optimal method for prenatal screening and detection of fetal sacrococcygeal teratomas. MRI can also be used as a supplementary diagnostic tool [21]. Obstetric ultrasound plays a pivotal role in both the diagnosis and management of these tumors during pregnancy [22]. CT can be performed after birth [23]. The patient's serum tumor markers and postsurgical pathological and immunohistological findings can also be used to predict metastasis [16].

The presence of squamous, respiratory, and prostatic epithelia confirmed the diagnosis of sacrococcygeal teratoma through histological examination [19]. Most sacrococcygeal teratoma [SCT] cases exhibit a benign histological nature and show excellent outcomes when diagnosed and treated early, effectively reducing morbidity and mortality. Late presentation and presence of malignant changes remain significant negative prognostic factors [24]. When cells exhibit positive immunohistochemical staining for glial fibrillary acidic protein, the diagnosis of oligodendroglioma within the mature sacrococcygeal teratoma is confirmed [25]. Solid and hyper vascularized teratomas, whether detected prenatally or in the neonatal period, carry a high risk of complications [26]. Immature sacrococcygeal teratomas accompanied by inguinal lymph node metastasis are of aggressive nature [27].

Treatment: Complete excision is the preferred approach. The posterior perianal approach has proven to be highly beneficial for excising teratomas, particularly when they have extracorporeal extensions [28]. Thorough evaluation is essential for all cases of sacral masses, and it is crucial to promptly differentiate between benign and malignant entities when managing these lesions [29]. Notably, adenocarcinoma can develop from a previously benign adult SCT, emphasizing the importance of vigilance in monitoring these cases [29]. SCT originates from germ cells with the potential to develop into gonads; however, in some cases, these cells remain in the sacrum, coccyx, and ovary, necessitating coccyx removal to prevent recurrence [16]. Pathologists, gynecologic oncologists, and surgical oncologists should exercise caution when dealing with locally aggressive teratomas, meticulously search for malignant components, and conduct short-term follow-up [30].

Survivors of SCT may encounter long-term anorectal, urological, and sexual complications, necessitating thorough evaluation and care [25]. Achieving complete excision of SCT without complications is challenging because of the complex anatomy of the sacrum. Preoperative 3-dimensional reconstruction and mixed reality [MR] technology based on computed tomography can provide spatial visualization, enabling surgeons to assess teratomas from various angles [31]. The selection of the surgical approach and resection method depends on factors such as tumor size, location, and composition, which can be determined using preoperative CT and MRI assessments. Most adult SCTs are benign, and favorable surgical outcomes have been observed in patients with malignant SCTs following complete resection. Even in individuals with recurrent malignant SCTs, positive surgical outcomes have been achieved after re-resection [20].

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