Journal of Clinical Cases

An Infant's Case of Perineal Lipoblastoma: A Clinico pathological Analysis

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Received Date: 13 June 2024
Accepted Date: 27 June 2024
Published Date: 23 July 2024

Citation:
Junzhao Z. An Infant's Case of Perineal Lipoblastoma: A Clinico pathological Analysis. Journal of Clinical Cases 2024.

1. Abstract

1.1. Background: Perineal lipoblastoma is an uncommon type of benign tumor that arises from embryonic white adipose tissue. Lipoblastomas are typically found in the limbs and trunk.

1.2. Case Report: We examine the pertinent literature and report a case of pediatric perineal lipoblastoma.

1.3. Conclusion: After examining the disease's pathological characteristics and clinical symptoms, we have come to some important findings that can help physicians in their work.

Keywords:
Tumor, clinical treatment, infant, perineal lipoblastoma, pathological features

2. Background:

A rare benign tumor called lipoblastoma develops from white adipose tissue in the embryo. It usually affects children under three years old and is most frequently located in the trunk and limbs. Nevertheless, it is also present in other bodily parts like the heart, mesentery, perineum, intraabdominal parenchyma, and head and neck. Usually, the first sign is a painless lump that progressively gets bigger or produces clinical symptoms because the surrounding tissues and organs are compressed. Because of the tumor's propensity to return, complete excision is the recommended course of treatment.

3. Case Presentation

The 19-month-old male child's parents discovered an inadvertent bulge in the perineum behind the left testicle, around the size of a yolk, without any pain. The mass has been progressively growing over time. Examining the area revealed a small, 1.0 cm-tall bulge behind the left testicle; the skin's texture was normal; there was no redness, swelling, ulceration, or hair growth on the skin's surface; the temperature of the skin was normal; and a soft mass, measuring approximately 4.0 cm by 2.5 cm by 1.5 cm, could be felt; its border was clear; the surface was smooth; it felt firm to the touch, and it was still movable; there was no adhesion to the surrounding tissues. The other side of the testicle did not exhibit any abnormalities. The preoperative ultrasound (Figure 1) revealed that the left testis was isoechoic in the perineum, measuring approximately 4.3 cm × 2.7 cm × 1.9 cm.

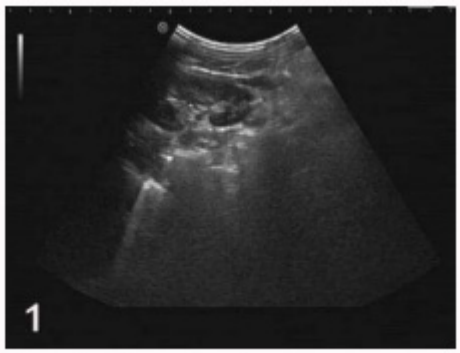

Figure 1: Preoperative ultrasound results.

Its clear boundary, regular morphology, and deformation were visible on the probe, and there was no obvious blood flow signal. The surface of both testes was smooth and echogenic. A nodule soft-tissue density shadow representing the perineum was visible on a sixty-four (64)-row spiral CT scan. Following the completion of pertinent evaluations, surgery was conducted, resulting in the creation of a curved incision at the left scrotal margin. The lump was observed during the procedure to be situated between the spongy body of the The tumor was fat-like and yellow in color, and it had no attachment to the surrounding tissues in the rectum or urethra. The peritoneum was still intact. The tumor was totally removed during surgery (Figure 2); because to its unusual form, it was referred for pathological analysis.

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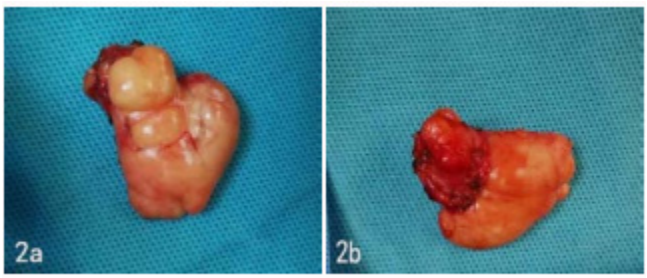

Figure 2a, 2b: Postoperative resection of the tumor.

The pathology revealed the following, and it was determined to be lipoblastoma by the departments of pathology at our hospital and the First Affiliated Hospital of Nanjing Medical University, a remote consultation and quality control platform. Visually, there is a yellowish nodule measuring 4.1 cm by 3 cm by 1.5 cm. The surface has a slightly foliated peripheral membrane, and the cut surface feels soft and greasy. There are also small foci of a greyish-yellowish semi-transparent-like area, measuring 1.7 cm × 1.2 cm, and the remaining nodules with scattered semi-transparent-like areas, with diameters of: 1.0 cm to 2.0 cm (Figures 1-3).

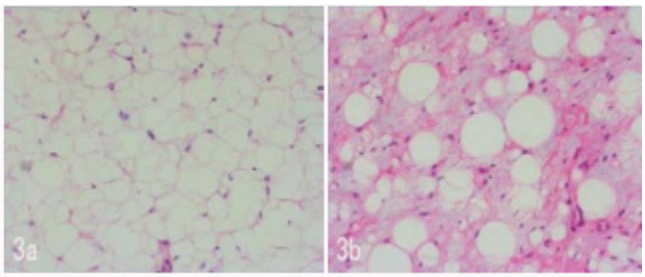

Figure 3a, 3b: Postoperative pathological results.

4. Discussion

The word lipoblastoma was coined by Jaffe, who defined it as a tumor of immature adipocytes. Lipoblastoma is a tumor that originates from embryonic white adipose tissue. When VELLIOS discovered a benign tumor that resembled adipose tissue in 1958, he referred to it as lipoblastomatosis [1]. Diffuse benign tumor [1]. Later, Chung and Enzinger divided the tumor into two categories: diffuse and limited. The diffuse tumors, known as lipoblastomatosis, are hard, may infiltrate and grow into the surrounding tissue, and have poor mobility. The limited tumors, known as lipoblastomas, are typically found in deeper parts of the body, are soft or tough, and have good mobility [2]. There are very few benign tumors like lipoblastoma. malignancy or tumor metastasis have not been reported. It usually manifests before the age of ten years, primarily affecting children under the age of three. However, a small number of cases have been documented in older children and adults, with both faster and slower development rates [3, 4]. The male to female ratio ranges from 1.5 to 2.8:1, meaning that the prevalence is higher in men than in women [3, 5]. The limbs and trunk are the most frequent locations, while a few cases have also been documented in the mediastinum, head and neck, perineum, heart, parenchyma, mesentery, and other body parts, according to earlier research. The most frequent location is the trunk, which is followed by the limbs. Relatively few occurrences occur in the remaining locations [6–9]. The tumor's length and diameter are typically between 3 and 5 cm, and masses on the body's surface are easier to find than masses located deeper within the body, which are typically found because of compression of the surrounding tissues or organs resulting in clinical symptoms or because the mass has grown to the point where it is visible as a surface mass. A 5-year-old boy's abdominal mass was reported by Fanna in 2019 [10]. Upon closer inspection, the mass was discovered to be a lipoblastoma in the liver, measuring 16.7 cm by 12 cm by 8.5 cm. This case describes a perineum-based lipoblastoma case, which has been discovered to be rather uncommon both outside and in China.

The main goals of managing perineum tumors are precise preoperative diagnosis and total tumor resection to reduce potential pressure on the surrounding tissues and testicular development. Tumors in the perineum can put pressure on the urethra, rectum, testes, and epididymis. Invasive testing are utilized less commonly on children, and imaging tests like CT, MRI, and ultrasound are typically employed to diagnose cancers in children. Clear boundaries, regular morphology, and internal nonuniform slightly high echogenicity are the predominant ultrasonographic manifestations of superficial site lipoblastoma; cases in deeper sites might be observed as weak echogenicity or heterogeneous echogenicity, and around 60% of cases exhibit these features. can be interpreted as striated strong echogenicity segregation, a sign of intratumorally fibrous bands; lipoblastomata, on the other hand, is characterized by slightly elevated echogenicity and irregular boundary and morphology; the remaining cases are consistent with lipoblastomata, including the one that was documented in our operation. This case's preoperative ultrasonography revealed an isoechoic pattern, which is inconsistent with previous research [11].

One significant benefit of ultrasonography is its ability to diagnose tissues that are positioned superficially in the body. With CT values ranging from -121 Hu to -20 Hu, the intra-abdominal lipoblastoma revealed an inhomogeneous density shadow that was greater than the density of subcutaneous fat at the same level (-140 Hu to -90 Hu) [12]. Lipoblastoma MRI reveals lobulated fat mass with varied degrees of nonmenacing cystic alterations, with fibrous septa of different thickness, and with nodular and flocculent soft-tissue signal shadows. with high signal in T1WI and low signal in T2WI. In the meanwhile, MRI is helpful for preoperative surgery since it has the advantage of superior soft-tissue resolution than CT and is radiation-free. This allows for better observation of the characteristics of the tumor and its infiltration of the surrounding normal tissues or organs. It has a positive impact on preoperative diagnosis, surgical plan development, and postoperative follow-up. It can also more effectively observe the features of the tumor and its invasion of the surrounding normal tissues or organs [12,13].

5. Conclusion

Surgeons have limited understanding of lipoblastoma, an extremely rare illness that entails a risk of overtreatment if misdiagnosed during clinical practice, or tumor recurrence. When a painless mass or a diffusely growing mass at a deeper site is present in younger children, or when an

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MRI indicates lipoid tissue with fibrous septa, or when ultrasonography shows internal heterogeneity of slightly elevated echoes with strongly echogenic striated septa, lipoblastoma or lipoblastosis should be considered. Ultrasonography or magnetic resonance imaging (MRI) is used in preoperative diagnosis to give a preliminary assessment of the disease's benignity or malignancy. Pathological and cytogenetic studies are also used to accurately draw conclusions, with pathological diagnosis being the gold standard. Tumors that have an undamaged envelope can be sent for pathological diagnosis upon total excision. It is possible to use intraoperative frozen pathology diagnostics for tumors with incomplete or absent envelopes to determine whether to modify the extent of resection. Lipoblastomatosis is treated based on the location of the tumor, infiltration of surrounding tissues or organs to determine the surgical plan, and an attempt to treat the condition without causing collateral damage. Lipoblastoma is treated by total excision of the mass.

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