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Case Report

Management of Scrotal Hematoma and Microsurgical Vasovasostomy Following Right Herniotomy: A First Case.

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Abstract

This article details the case of a 2-year-old male who experienced a scrotal hematoma subsequent to a standard right herniotomy. Preliminary conservative interventions proved inadequate, requiring surgical evacuation. A vas deferens injury was detected during the surgery, necessitating microsurgical vasovasostomy to rectify the disruption and maintain fertility. Postoperative hemorrhage, an uncommon but recorded complication in pediatric herniotomies, occurs in roughly 1.5%–5% of instances, as indicated in the literature. This example emphasizes the difficulties in addressing uncommon complications in pediatric hernia procedures and shows the significance of microsurgical proficiency.

Keywords: scrotal hematoma, vas deferens injury, microsurgical vasovasostomy, complications of hernia repair

Introduction

Inguinal hernias occur in 1%–5% of full-term infants and are more prevalent in preterm infants. Herniotomy is the conventional intervention; however, complications such as scrotal hematoma and damage to the vas deferens, though infrequent, might result in substantial clinical complications [2]. The incidence of postoperative hemorrhage in pediatric herniotomies varies between 1.5% and 5%, with scrotal hematomas being a specific category of these problems [3]. This example underscores the management difficulties associated with these problems and the essential function of microsurgical vasovasostomy in maintaining fertility. Repairing an inguinal hernia (herniotomy) is still one of the most common surgeries for children around the world. In children, the rate ranges from 1% to 5%, and it is significantly higher in preterm babies [1]. Even though the treatment is common and has a low overall risk of death, it is nevertheless risky. Postoperative bleeding and hematoma formation are important concerns among the recorded sequelae, with reported frequencies ranging from 1.5% to 5% [2,3]. The emergence of a scrotal hematoma is clinically significant, since it can induce pain, parental concern, and, in increasing instances, require surgical intervention. A more serious, but less common, problem is iatrogenic injury to the vas deferens. Because this structure is quite close to the hernia sac, it is easy to hurt it during dissection, which could have long-term-term effects on fertility [4]. Microsurgery has made it much easier to treat these kinds of damage. Microsurgical

The best way to rebuild the vas deferens is because it gives the best likelihood of restoring ductal patency and protecting future reproductive potential [4.5]. This case report describes the presentation and treatment of a 2-year-old boy who developed a symptomatic scrotal hematoma after a right herniotomy. During surgery, it was discovered that the vas deferens had been cut. We delineate the single-stage therapy encompassing hematoma evacuation and prompt microsurgical vasovasostomy. This report seeks to emphasize the significance of attention to rare complications, reinforce the essential role of interdisciplinary teamwork, and enhance the literature on the effective use of sophisticated microsurgical methods in a pediatric context.

Case Presentation

A 2-year-old male exhibited a right inguinal hernia and had a conventional herniotomy.

Significant scrotal edema and discolorations were noticed within hours post- surgery (Figure 1).

Ultrasound verified the presence of a scrotal hematoma (Figure 2), and a decrease in hemoglobin from 11 g/dL to 8 g/dL signified active hemorrhaging.

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Figure 1. Scrotal Hematoma Post Rt herniotomy.

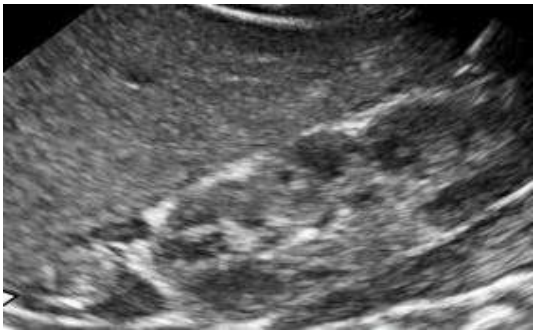

Figure 2. Scrotal Ultrasound shows a scrotal hematoma.

Management

At first, conservative measures that included rest and observation were implemented.

Nonetheless, the increasing growth of the hematoma required surgical intervention. An iatrogenic damage to the vas deferens was identified during hematoma evacuation, necessitating microsurgical vasovasostomy to reestablish continuity and secure future fertility.

Surgical Techniques;

The vasovasostomy was conducted under magnification (10x–25x) utilizing a Zeiss surgical microscope Figure 3 . Ultra-fine 7-0 Prolene sutures were used for stitching, tension-free single-layer anastomosis of the transected vas deferens.

Figure 3. Surgical Microscope (Zeiss) Germany.

Outcome

The operation successfully resolved the hematoma. The patient got better without obvious complications; the incision was well healed after 14 days (4). Long-term follow-up is scheduled to evaluate the reproductive outcome

Figure 4. Follow-up post 14 days.

Discussion:

After herniotomy, scrotal hematoma is a rare but significant complication that is frequently linked to surgical trauma or insufficient hemostasis. The tiny structures of pediatric patients and the potential complications, such as vas deferens disruption, present unique challenges. The significance of interdisciplinary strategies in pediatric surgical treatment in this case is underscored by the fact that the initial herniotomy was performed by a general surgeon, and the subsequent microsurgical procedure was conducted by a urologist. In such cases, microsurgical vasovasostomy provides the most advantageous opportunity to preserve reproductive potential. The management of a post-herniotomy scrotal hematoma that is confounded by vas deferens transection, as demonstrated in this case, is a complex issue that affects numerous critical areas of pediatric surgery and urology. Our experience contributes to the discussion on optimal management strategies in resource-variable settings while also reinforcing established principles. The Etiology and Threshold for Re-intervention in Scrotal Hematoma.

Bleeding from the cremasteric muscle or a minor pericardial vessel is the most common cause of post-herniotomy scrotal hematoma.

The initial course of treatment for stable, non-expanding hematomas is conservative management with observation, as evidenced by our case and the literature [3].

Nevertheless, prompt surgical evacuation is required in the

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event of indicators such as significant swelling, pain, a progressive decline in hemoglobin, or signs of compartment syndrome. Gonzalez et al [3]. Observe that delayed intervention in the expansion of hematomas can increase morbidity. Our decision to continue with exploration is consistent with this proactive approach, which also serendipitously enabled the identification of the concurrent vasal injury that may have been overlooked or diagnosed at a later, less optimal time for repair. Vas Deferens Injury: Microsurgical Repair as the Standard and Diagnostic Challenge. It is estimated that the incidence of iatrogenic vasal injury is between 0.13% and 0.3%, although it may be underreported [4]. This complication is deeply dreaded. The diagnosis can be made intraoperatively during the evacuation of a hematoma, as demonstrated by our case, or it may manifest later in the form of infertility or testicular atrophy. Microsurgical reconstruction is the accepted treatment for a transection that is identified immediately or early. Braun et al [4]. underscore the critical importance of employing thin (9-0 or 10-0) non-reactive sutures and an operating microscope to achieve a patent, tension-free mucosal anastomosis. This approach optimizes the likelihood of future sperm transit. Consistent with the technical principles delineated in pediatric urology literature [4.5], our successful outcome was achieved through the use of 7-0 Prolene in a single-layer technique that was tailored to the pediatric vas deferens diameter. Timing of Repair and Interdisciplinary Collaboration. This case serves as a testament to the critical significance of interdisciplinary care. A general surgeon performed the initial herniotomy, but the intricate reconstructive procedure necessitated the expertise of a urologist who was trained in microsurgery. Foster et al. [5] contend that this type of collaboration is indispensable for the optimization of patient outcomes and the management of intricate surgical complications.

Additionally, the capacity to conduct the vasovasostomy immediately during the exploration for hematoma is a substantial advantage. Studies have demonstrated that immediate restoration yields superior results in comparison to delayed attempts, which are frequently complicated by fibrosis and gap formation [4]. This approach is supported by a single anesthetic and a **single operation.**

Situating the Case in the Context of Global Surgical Practice. The successful application of microsurgical vasovasostomy in Libya, as reported here, contributes to the expanding body of literature that supports the globalization of advanced surgical techniques, despite its well-established status in high-resource settings.

It emphasizes that centers in diverse healthcare systems can achieve exceptional surgical outcomes with the proper training, instruments, and institutional support. This is consistent with a more extensive initiative to establish specialized surgical capacity that is sustainable on a global scale. Fertility Results and Long-Term Follow-up. Long-term patency and future fertility are the definitive indicators of pediatric vasovasostomy efficacy. Although the short-term wound healing of our patient was exceptional, longitudinal follow-up into adolescence is intended to evaluate testicular growth and, subsequently, semen parameters. Braun et al. [4], have recommended that this dedication to long-term follow-up is essential for the comprehensive evaluation of the efficacy of these reconstructive endeavors and the provision of comprehensive care to the patient and their family.

Conclusion:

In conclusion, this case of scrotal hematoma and vas deferens injury following herniotomy highlights a cascade of critical decision points: recognizing the failure of conservative management, exploring for the source of bleeding, identifying a concomitant ductal injury, and executing a definitive microsurgical repair.

It reinforces established protocols for managing surgical complications and demonstrates the successful real-world application of microsurgical principles in pediatric urology. The case serves as a pertinent reminder of the potential for severe complications in common surgeries and advocates for surgical preparedness, interdisciplinary cooperation, and the ongoing development of microsurgical expertise to safeguard pediatric patients' future reproductive health. The method that has been delineated is consistent with the global advancements in pediatric urology, demonstrating the increasing expertise in countries such as Libya, where this pioneering surgery was performed.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare

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