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A Rare Case of Vulval Necrosis Following Femur Fracture Surgery

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Abstract

Vulval necrosis is an atypical complication following orthopaedic surgeries of the lower limb especially following femur fracture repairs and arthroscopic procedures. The accurate explanation for such a condition is often described as a result of intra operative injury to the blood vessels supplying the vulva or postoperative ischemic necrosis due to the use of a perineal traction post. We here by present a rare case of vulval and perineal necrosis following fracture of femur repair in a 20-year-old female. The patient had undergone open reduction and internal fixation of femur fracture involving intraoperative use of a perineal post and subsequently developed bilateral vulval swelling and blackish discoloration of left labia and perineal region. Such a condition can have profound psychological and functional effects. Therefore, implementing protective measures, ensuring early identification, and initiating timely management are essential to preserving vulval integrity and function.

Keywords: Vulval necrosis, Hip surgery, Traction table

Introduction

Vulval necrosis is an uncommon yet serious condition that can develop due to multiple factors, including trauma, infections, vascular compromise, and systemic illnesses. When it occurs as a consequence of trauma, the condition is often attributed to disruptions in blood flow, excessive pressure on the tissue, or direct injury to the vascular structures, ultimately resulting in progressive tissue damage and necrosis. While it is frequently linked

to surgical procedures, obstetric injuries, and pelvic fractures, there have been rare instances where it has followed hip and lower limb orthopaedic surgeries. Early diagnosis and proactive treatment, including debridement, antimicrobial therapy, and reconstructive procedures, play a crucial role in preventing further deterioration and restoring both function and aesthetics. This review explores the underlying mechanisms, clinical features, and treatment approaches for vulval necrosis following trauma, highlighting the importance of a multidisciplinary strategy in achieving optimal patient outcomes

Case Presentation

A 20-year-old unmarried girl with alleged history of road traffic accident presented to the Casualty and was diagnosed to have multiple fractures including the facial bone fractures, left tibial shaft fracture and left femur shaft fracture. Patient underwent multiple surgeries in multiple settings to correct the deformities. Patient underwent open reduction and internal fixation of femur fracture with proximal femur nailing under general anaesthesia on a traction table with an approximate blood loss of 1500ml. Patient developed bilateral vulval swelling and blackish discoloration of left labia and perineal region (figure 1) after 12hrs of surgery and was referred for advice of further management. There was no other significant medical history and no prior gynaecological complaints. Radiological investigations were done to rule pelvic trauma or perineal injuries. On examination there was bilateral vulval swelling more on the right side. There was 4 x 5 cm blackish discoloration of the left labia and both the labia minora and left gluteal cleft. There was peeling of skin with no evidence of inflammation or features suggestive of vulval hematoma (figure 2). No evidence of foul smelling, purulent discharge from the site. As there was no indication for surgical intervention, conservative management was advised. Regular dressing using magnesium and glycerine was done to reduce vulval edema. Strict perineal hygiene and limb elevation was advised. Broad spectrum antibiotics were started. Wound swab showed commensals. Patient was started on trypsin and chymotrypsin to reduce soft tissue edema. The edema reduced by day 7 post-operatively but the discoloration increased and the skin started separating from the base (figure 3). Regular dressing using povidone iodine and EUSOL (Edinburgh University solution of lime) and mupirocin ointment. The wound started showing signs of granulation tissue and secondary healing by 4 weeks post-surgery (figure 4).

Discussion

Perineal post-related complications are an uncommon but serious consequence following surgical intervention for femur fractures and other orthopaedic conditions, often leading to significant patient morbidity. Given the limited literature available on this subject, raising awareness among orthopaedics trauma surgeons is essential. This study aims to highlight these complications and encourage the exploration of alternative techniques to prevent them in future surgical procedures.[1] Perineal post-related complication, particularly pudenal nerve neuropraxia and perineal necrosis including vulval and scrotal necrosis, are among the most frequently reported issues following hip arthroscopy[2]. A prospective study involving 1,000 hip arthroscopy cases performed without a perineal post, Mei-Dan et al.[3] successfully employed the Trendelenburg position to create sufficient friction between the patient and the operating table, allowing for adequate limb distraction. In most cases, conservative management is effective, with postoperative assessments focused on identifying vulval edema and any associated injuries. If edema develops, it is crucial to maintain strict

perineal hygiene while employing local cold compression and hygroscopic dressings to minimize swelling. Regular monitoring is essential to detect any progression toward necrosis. Should necrosis occur, antibiotic therapy should be initiated based on institutional guidelines, and surgical debridement is typically required to remove necrotic tissue and create a suitable environment for wound healing[4].

Conclusion

Vulval necrosis following femur fracture surgery is an exceptionally rare but serious complication that can significantly impact a patient's physical and psychological well-being. This case highlights the potential risks associated with the use of a perineal post during lower limb orthopedic procedures, emphasizing the importance of early identification and timely intervention. While the exact mechanism remains multifactorial, vascular compromise due to prolonged perineal pressure is the most widely accepted cause. A multidisciplinary approach is essential for managing such cases effectively. Conservative treatment, including strict perineal hygiene, edema control, broad-spectrum antibiotics, and advanced wound care, plays a critical role in preventing further deterioration. Given the limited literature on perineal post-related complications, further research is needed to explore alternative methods of patient positioning, such as postless traction techniques, to reduce the risk of perineal injuries. Orthopedic surgeons must remain vigilant about these potential complications and take necessary precautions, including proper padding and minimizing intraoperative pressure. By implementing preventive measures and ensuring prompt management, the morbidity associated with vulval necrosis can be significantly reduced, improving patient outcomes and overall surgical safety.

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Legend Figures

Figure 1: Image showing bilateral vulval edema and blackish discoloration of skin

Figure 2: Image showing reduction of edema but peeling of skin

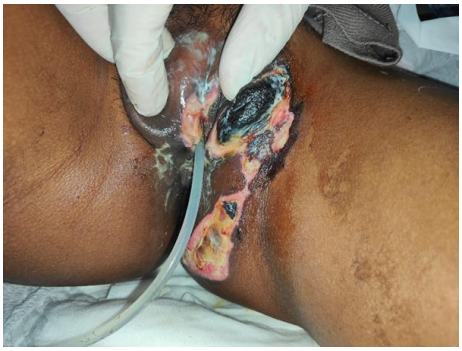

Figure 3: Image showing necrosis

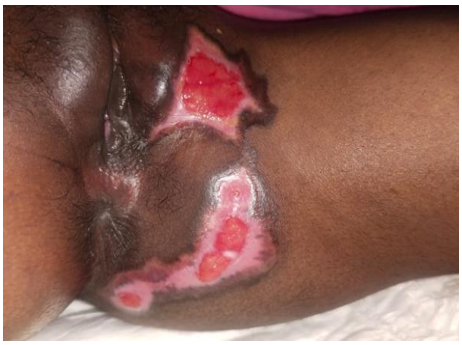

Figure 4: Image showing granulation tissue and secondary healing