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Case Report

Partially avulsed anus in blunt traumatic perineal laceration: Case report

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ABSTRACT

Blunt civilian perineal laceration with anorectal avulsion is rare and usually associated with severe pelvic trauma. The principles of management of these injuries consist of repair of the laceration (primarily or secondary), diversion of fecal stream, and presacral drainage of the wound. Unnecessary diversion of fecal stream may add complications and increases patient's morbidity. We report a case of severe blunt traumatic perineal laceration associated with partially avulsed anus which was managed without colostomy. The wound healed completely with preserved anal sphincter function. To our knowledge, no similar cases of anal avulsion were treated without diversion of the fecal stream in the English literature.

Introduction

Severe perineal lacerations and anal avulsion are uncommon injuries in blunt trauma patients. Perineal trauma can involve injuries of the urogenital organs, anus, rectum, and may be associated with bone fractures and other intra-abdominal organs injuries [1]. We have learnt from military experience that the principles of management of these injuries, are mainly debridement, immediate or delayed wound repair, diversion of fecal stream, and presacral drainage of the wound [2]. In blunt civilian perineal laceration, anorectal avulsion is rare and usually associated with severe pelvic trauma [3]. Only few case reports were published in the English-language literature [4].

Herein, we report a case of blunt degloving perineal trauma causing partial avulsion of the anus. The patient was treated by primary repair without the need for fecal diversion.

Case presentation

A 21-year-old male had a collision with a car while riding his motorcycle. He fell on his buttocks and skidded on the street for a short distance. He had no history of loss of consciousness or vomiting. The patient had no history of chronic medical illness. In the Emergency Department, his pulse rate was 62 bpm, blood pressure 120/80 mm Hg, and respiratory rate was 18/min. His GCS was

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15/15 and both pupils were equal and reactive to light. Perineal examination showed a partially avulsed anus and very deep perineal laceration extending posteriorly to the natal cleft area and laterally into the left buttock and thigh (Fig. 1). Total wound length was approximately 25–30 cm. The left thigh was swollen and has shown a big hematoma. No blood was seen on the external urethral meatus. The wound was bleeding profusely and was packed with gauze. Careful urinary catheter insertion was performed, and clear urine was seen in the urine collecting bag. Blood investigation revealed hemoglobin of 158 g/L, hematocrit 0.42 L/L, and total white blood cell count of $25.9 \times 10^9/L$. Urine analysis was normal.

Trauma CT scan showed a perineal laceration involving the external anal sphincter on the left side and sparing the internal anal sphincter (Fig. 2 and Fig. 3). Fracture of the right inferior pubic ramus was the only pelvic fracture detected in CT scan. A hematoma was identified at the anorectal junction posteriorly extending into the levator ani muscle bilaterally. A large air containing fluid collection over the left gluteus maximum muscle measuring 11×3 cm was also noted (Fig. 4A). The hematoma and gas extended inferiorly and laterally along the left thigh (Fig. 4B). There was no evidence of free intraperitoneal air, solid visceral organ injury, vascular injury, or free intraperitoneal fluid.

Shortly after returning from the CT scan room, the patient developed sudden profuse bleeding from the perineal wound and he became hypotensive with blood pressure of 55/30 mmHg and pulse 96 bpm. Intravenous fluid resuscitation was started immediately, and two units of packed RBC were transfused. The wound was repacked, and the patient was shifted to the operation theater to explore the wound under anesthesia after stabilization of the patient's hemodynamic status.

In the operative theater, the patient was placed in the lithotomy position. Exploration of the wound under anesthesia revealed a partially avulsed anus with very deep perineal laceration close to the anal canal and extending into the pelvis. The whole thickness of the external anal sphincter muscle on the left side was lacerated with gapping and loss of a portion of the musculature of the sphincter on that side. The connection of the anal verge to the perineal skin on the right side of the anal canal was preserved. The internal anal sphincter looked intact. The laceration was extending posteriorly to coccyx, laterally into the left buttock and thigh, and anteriorly to the base of the scrotum. Intraoperative rigid sigmoidoscopy reaching up to 13 cm from the anal verge has revealed normal mucosa without tear or bleeding.

The wound was thoroughly washed with saline using jet wash. Active bleeding from the lacerated wound was controlled, and the wound was repaired in layers taking extra care to repair the external anal sphincter. The wound was closed primarily with a drain kept in the left buttock and anococcygeal area (Fig. 1B). No fecal diversion procedure was performed.

Postoperatively, the patient was hemodynamically stable. He was kept nil per mouth then gradually started oral fluid and soft diet

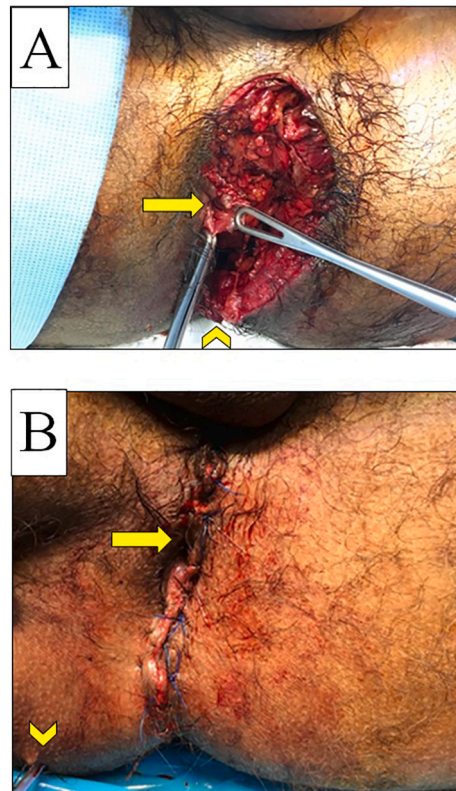


Fig. 1. A. Partially avulsed anus showing the anal verge (arrow) with very deep perineal laceration extending posteriorly the natal cleft area (arrowhead).

B. Primary repair of the anal sphincter and anal verge (arrow) with drain kept in the anococcygeal area (arrowhead).

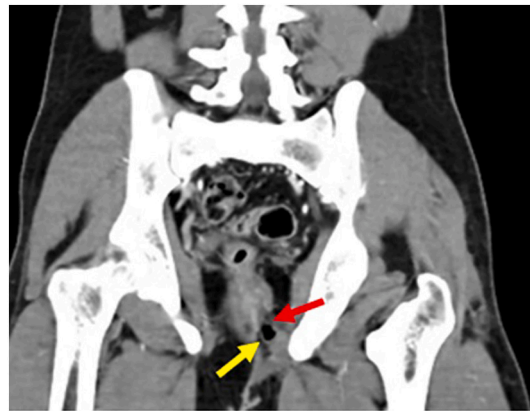


Fig. 2. CT scan of the pelvis in coronal view depicting a laceration involving the external anal sphincter on the left side (Red Arrow) sparing the internal anal sphincter. Small air bubble is noted adjacent to the laceration on the left side (Yellow Arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

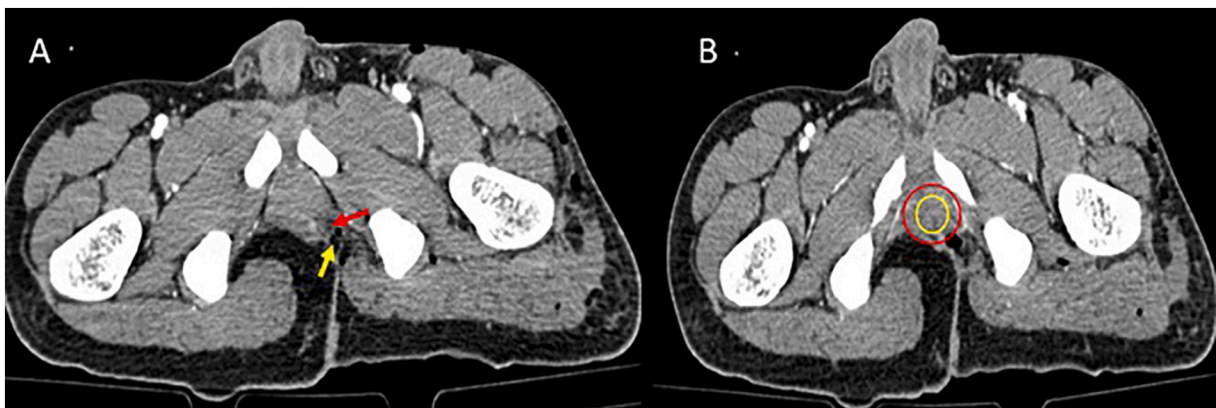


Fig. 3. CT scan of the pelvis in axial views **Image A** depicting a laceration involving the external anal sphincter on the left side which appears hypodense compared to the rest of the sphincter (Red Arrow). Small air bubble seen adjacent to the laceration on the left side (Yellow Arrow). **Image B** represents imaginary boundaries of the external anal sphincter (Red Circle) and the internal anal sphincter (Yellow Circle). Such distinction is suboptimal on CT when compared to MRI. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

in the next day. The patient started his normal diet on the second postoperative day. He received laxative (Macrogol sachet twice per day) to prevent constipation and continued to receive intravenous then oral antibiotics. The patient passed normal stools on the third postoperative day.

The left thigh hematoma was treated initially conservatively. Unfortunately, the hematoma did not resolve spontaneously, and the patient was complaining of increased pain in the left thigh. On the 8th post-operative day, a decision has been made to drain the hematoma under general anesthesia to alleviate patient's pain and to avoid the risk of secondary infection of the hematoma. Around 5 cm incision was performed at the middle of the anterolateral aspect of the thigh. About 1200 mL of hematoma blood was evacuated and two corrugated rubber drains were placed and fixed to the skin.

The patient was discharged on the 13th day of admission. Follow up in the surgical outpatients' clinic after two weeks revealed normal defecation, mild pain in left thigh and satisfactory wound healing of the perineal laceration.

Discussion

Severe perineal laceration with anal avulsion is very rare in civilian trauma. Diversion of the fecal stream is considered as an important procedure in some guidelines developed for dealing with such injuries. These guidelines are mostly adopted from the management of severe perineal laceration in military injuries [5]. Compared to civilian blunt lacerations, most perineal lacerations in military injuries result from penetrating wounds caused by shrapnel and explosions. These are usually associated with severe wound contamination and internal organ injuries. The patient described in our report was managed successfully by primary repair of the laceration without a diverting colostomy. Fecal diversion may not be needed in civilian blunt perineal injuries which are usually less

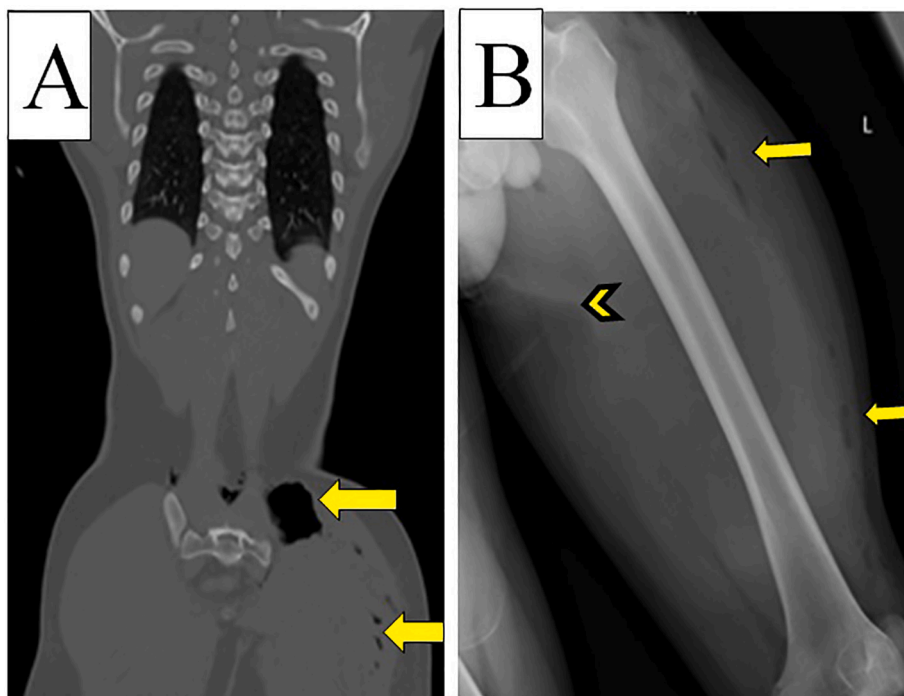


Fig. 4. **Image A** Trauma CT scan in coronal view depicting a large air containing fluid collection over the left gluteus maximum muscle (arrow). **Image B** X-ray left femur depicting multiple air pockets (arrows) and hematoma in the soft tissue of the left thigh (arrowhead).

prone to infection compared with the more destructive military injuries associated with devitalized tissues and presence of many foreign bodies. To our knowledge, there is no description of similar injuries treated without diversion of the fecal stream in the literature [6–8].

In this report, the patient was skidded on his back and buttocks. The severe shearing forces he received resulted in a perineal tear and partial avulsion of the anus which was not completely separated from the perineal skin. The anal verge was connected to the perineum at the right side which prevent the anus from being pulled cranially [6].

Furthermore, the violent shearing force led to a degloving injury similar to Morel-Lavallée lesion where the thick layer of the subcutaneous fat and skin is ripped from its underlying tough deep fascia leading to formation of a potential space between the two layers.

Bleeding from the crushed vessels into this space resulted in a big hematoma in the buttock and left thigh. The patient lost a large volume of blood in the hematoma and from the lacerated wound. He was hemodynamically stable initially and compensated for the blood loss. He then developed unconcealed hypovolemic shock due to continuous blood loss from the bleeding wound [9]. The patient was resuscitated with blood and IV fluid therapy with control of the bleeding from the lacerated wound in the operative theater.

There is no universally accepted algorithm for the treatment of Morel-Lavallée lesion. Conservative management options include compression dressings and aspiration. Failure of conservative management may predispose patients to bacterial colonization or to develop a chronic hematoma without any reduction in dead space. Absolute indications for surgical intervention include skin necrosis, infection, or presence of open bone fracture. Other indications for surgical management include symptomatic lesions with unsuccessful conservative management as in our patient [10]. The hematoma was drained on the 8th post-operative day for fear of secondary infection.

In the case described above we opted for primary repair of the sphincter without a stoma because the wound was not severely contaminated. The decision against fecal diversion was made intraoperatively as there was no obvious injury to the anorectal mucosa detected by sigmoidoscopy and there were no urological or intra-abdominal injuries necessitating an exploratory laparotomy. In contradistinction to other cases described in the literature, we felt that our patient did not require fecal diversion [11] especially he did not need any surgical intervention for his right inferior pubic ramus fracture which was treated conservatively.

Lunsjo et al. have found that a diversion colostomy can still be avoided in some patients with perineal laceration and open pelvic fractures without rectal injuries [12].

The patient was not complaining of any fecal incontinence before the injury. Postoperatively, the patient was followed up in the surgical outpatients' clinic. In the last visit to the clinic, the patient didn't report any surgical complications and had a preserved anal tone with good healing of the perineal wound. He remained continent to both feces and flatus. Wexner score (Cleveland Clinic score) was not performed to assess the fecal continence. We were planning to refer the patient to a proctology center to assess his condition for the presence of any degree of fecal incontinence. Unfortunately, the patient was lost to follow-up before referring him to the proctology

center where he was expected to have more diagnostic studies as anorectal manometry and endoanal ultrasound to evaluate the repaired anal sphincter.

Traumatic anal sphincter injuries are more common in females due to childbirth related trauma. Management of patients with fecal incontinence is complex. However, for similar severity scores, males had better quality of life and long-term effects compared with females [13].

Conclusions

Fecal diversion procedures may not be indicated in severe blunt perineal laceration with anal avulsion to avoid the unnecessary complications of stomas and the psychological trauma to the patients. Degloving injuries should be suspected in such severe blunt trauma with shearing forces to start the replacement of blood loss early.

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