

## Young Man with Gunshot wound to the Buttock

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### 1. Introduction

A 15-year-old male sustained an isolated gunshot wound to the right buttock. There was no associated exit wound. At the time of admission, he was alert and oriented. He was able to move all of his extremities with normal strength and sensation. His vital signs were BP – 145/98 Pulse-75, Respirations – 18 Temp 100.1 degrees. The abdomen was soft, non-distended and non-tender. Gross blood was present on the rectal exam. The FAST was negative. A pelvic film revealed a bullet fragment at the level of the left proximal femur. A left inferior pubic ramus fracture was also noted. The hemoglobin was 14.7 and the serum lactate was 2.4. The patient was taken to the operating room for exploration. Antibiotic prophylaxis included intravenous levaquin and flagyl. A rigid proctosigmoidoscopy was performed to 15 cm. Blood was present

throughout the rectal vault. A foley catheter was placed. The urine was clear. Abdominal exploration ensued. The intraabdominal viscera were normal. A loop sigmoid colostomy was fashioned and the midline incision closed. The skin was stapled. Three days later the patient had an episode of bright red blood per rectum. A CT scan was done. No blush was evident in the rectum. A rectal wall hematoma was present (Figure 1). There was enhancement of the corpus spongiosum. The left inferior pubic ramus fracture was evident. Aside from these findings the exam was negative. He continued to progress and was discharged to home tolerating a normal diet with good colostomy function. Four and a half months later, the patient had colostomy reversal. His post-operative course was benign. Normal bowel activity returned and he was discharged to home in good condition.



Figure 1

## 2. Discussion

Penetrating pelvic trauma presents several challenges for trauma surgeons. Because of anatomical considerations, vascular injury remains a major cause of mortality. Damage control procedures along with massive transfusion may be required to control acute hemorrhage [1]. If on-going hemorrhage is not present an assessment for the presence of urinary bladder, rectum, and bony injury must be made during the work-up [2]. CT scanning in a stable patient is the best diagnostic study overall [3]. If the urine is clear, a major bladder injury becomes less likely although not entirely ruled out. A formal cystogram is an additional diagnostic tool but even this study may be misleading on occasion [4]. Rigid proctosigmoidoscopy should be implemented to evaluate the rectum [5]. In the patient described the injury was extraperitoneal and a colostomy was indicated [6]. A simplified approach that avoids additional procedures like pre-sacral drainage and distal rectal washout has shown efficacy [7]. A multi-institutional retrospective analysis from 2004-2015 revealed a three-fold increase in abdominal complications in patients treated with pre-sacral drainage and or distal rectal washout [8]. These procedures are no longer recommended. A non-operative approach to extra-peritoneal penetrating rectal injury in the civilian setting has also been suggested [9,10,11]. These low velocity wounds may be most amenable to this approach. If the rectal injury can be repaired either from below or above avoiding colostomy is the preferred option. A novel approach using a transanal platform to repair a severe rectal injury from below has been reported [12]. Without being able to close the hole, continued fecal spillage may be a potential source of sepsis. Even with this theoretical concern, CT guided drainage has proved to be an effective tool to achieve source control in patients with a pelvic abscess. A CT scan was done in the post-operative period because of rectal bleeding. This bleeding can be attributed to residual blood in the rectal vault but the bright red nature caused concern. There were no hemodynamic changes on exam. No contrast extravasation from the rectum was seen on CT. Clinically the patient did well and was discharged to home in good condition. He was admitted almost 5 months later for a scheduled colostomy closure. He tolerated this procedure well and has returned to full activity.

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