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# What Is Causing Scrotal Swelling, Pain, and Discoloration After a Man's Vasectomy?

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A 29-year-old man presented to his primary care provider with a severely swollen purple and blue scrotum and bilateral ecchymosis along the lateral thigh and suprapubic area (**Figures**). He had undergone an outpatient no-scalpel vasectomy (NSV) the day before.





The patient's medical history was positive for irritable bowel syndrome (IBS), hemorrhoids, and gastroesophageal reflux disease. His surgical history included a right arthroscopic shoulder repair. At presentation, he reported a dramatic increase in scrotal swelling over the past 24 hours, with extension to the perineum, accompanied by significant pain on defecation. The patient stated that he initially had attempted to return to the urologist but had been unable to get an appointment at that time; he had been advised by his surgeon to apply ice to the area and to elevate the scrotum.

After consultation with his primary care provider, the patient was advised to go to the emergency department, where he was subsequently admitted to the hospital.

**What is the cause of this man's pain and scrotal swelling?**

- A. Testicular torsion
- B. Strangulated inguinal hernia
- C. Fournier gangrene
- D. Scrotal hematoma

***Answer on next page.***

# What Is Causing Scrotal Swelling, Pain, and Discoloration After a Man's Vasectomy?

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## Answer: Scrotal Hematoma

The patient received a diagnosis of scrotal hematoma as a complication of his vasectomy. Testicular Doppler ultrasonography was performed to assess blood flow to the testicles. After confirmation of adequate blood flow, the scrotum was drained of the hematoma, and the patient was discharged with supportive home treatment and was directed to follow up with his urologist.

**Discussion.** A 2014 Cochrane Review concluded that NSV resulted in less bleeding, fewer hematomas, fewer infections, less pain, and a shorter operative time than the traditional incisional technique.<sup>1</sup> Because the NSV technique involves moving vessels toward the perivascular fascia rather than severing them, the incidence of hematomas may be reduced.<sup>2</sup>

Nevertheless, our patient developed an early postoperative complication of a hematoma after NSV. Hematomas may form secondary to severed perivascular vessels leaking into the easily expandable scrotal tissue. According to the American Urological Association, symptomatic hematoma and infection occur after vasectomy at a rate of 1% to 2%.<sup>3</sup> Unless the hematoma is very large, it often can be treated with ice, rest, and observation. Our patient experienced a larger than usual hematoma, which ultimately required surgical drainage in order to prevent the possibility of testicular compromise secondary to infection.

**Testicular torsion.** Testicular torsion is the twisting of the spermatic cord and the blood supply to the testicle. During vasectomy, the vas deferens is cut, and all other contents of the spermatic cord—including the testicular artery, deferential artery, and cremasteric artery—remain intact, along with the genital branch of the genitofemoral nerve, pampiniform plexus, lymphatic vessels, and tunica vaginalis. If the attachment of the tunica vaginalis to the testicle is too high, it allows for rotation of the testis and intravaginal torsion. This congenital anomaly is present in 12% of the male population and is bilateral in 40% of cases.<sup>4</sup>

Physical examination of a testicular torsion may include massive scrotal edema, as in our patient's case. Dark red discoloration also may be present. The cremasteric reflex is usually absent or diminished in testicular torsion, along with a negative Prehn sign; however, these tests may be difficult to perform due to the extreme pain and tenderness accompanying the torsion.<sup>5</sup>

The differential diagnosis of testicular torsion includes epididymitis, orchitis, hydrocele, tumor, and traumatic hematoma. Testicular torsion is primarily a clinical diagnosis. The TWIST (Testicular Workup for Ischemia and Suspected Torsion) scoring system helps to stratify the likelihood of torsion into low, intermediate, and high risk and has shown a 100% negative predictive value when scored by a urologist.<sup>6</sup> If physical examination findings strongly suggest a torsion, surgery should not be delayed by obtaining imaging studies. If there is a low suspicion for torsion on physical examination, as was the case in our patient, color Doppler and power Doppler ultrasonography can be used to rule out torsion.<sup>6,7</sup>

**Fournier gangrene.** Fournier gangrene is relatively uncommon, with approximately 500 cases of the infection having been reported since venereologist Jean Alfred Fournier's 1883 report.<sup>8</sup> The typical patient is in his 60s or 70s with one or more comorbidities such as diabetes mellitus, which is present in 60% of cases.<sup>9</sup> Given our patient's younger age and lack of significant comorbidities, Fournier gangrene is an unlikely diagnosis. Nevertheless, this polymicrobial necrotizing fasciitis of the perineal, perianal, or genital areas may occur secondary to trauma to the genitalia or localized infection adjacent to a portal of entry as the initiating event, and the necrotizing process commonly originates from an infection in the anorectum, the urogenital tract, or the skin of the genitalia. Given our patient's history of IBS, hemorrhoids, perineal pain and painful bowel movements, this diagnosis may warrant at least a passing consideration, given the reported mortality rate of 7.5% for this condition,<sup>10</sup> and given that early surgical intervention significantly reduces mortality.

The clinical presentation involves intense pain and tenderness in the genitalia with accompanying prodromal fever and lethargy, progressing to edema, erythema of the overlying skin, subcutaneous crepitation, and obvious gangrene with purulent drainage. These manifestations occur over 2 to 7 days. Given that our patient had undergone surgery within 48 hours of presentation, these manifestations likely would not have occurred so quickly.

The physical examination should focus on palpation of the genitalia and perineum, including digital rectal examination in patients with a history of hemorrhoids or inflammatory bowel disease, to look for any potential trauma that could be a suspected site of bacterial entry. Special attention to any fluctuance or soft tissue crepitation is important, since these are other accompanying signs of Fournier gangrene. A feculent odor also may be present due to the

polymicrobial and anaerobic nature of the infection, with *Escherichia coli* and *Bacteroides* being the predominant aerobe and anaerobe, respectively.<sup>11,12</sup>

The differential diagnosis can include testicular hematoma, abscess, cellulitis, testicular torsion, orchitis, and hydrocele. If there is a high suspicion for Fournier gangrene, a complete blood cell count, arterial blood gases, and blood and urine cultures are indicated, along with a culture of any open wound or abscess.

Surgery is the definitive treatment, along with early administration of broad-spectrum antibiotics that cover aerobic and anaerobic organisms, tetanus prophylaxis, and management of underlying comorbidities such as diabetes or alcoholism that might slow the healing process through vascular compromise or suppression of cellular immunity.

**Incarcerated inguinal hernia.** Approximately 800,000 inguinal hernia repairs are performed annually in the United States, with most patients being male.<sup>13</sup> An indirect hernia can develop at any age and is due to a congenital defect that results in a persistent processus vaginalis allowing intra-abdominal cavity contents at the internal ring to tract through the external ring and into the scrotum. An indirect inguinal hernia is a congenital defect, regardless of the patient's age. Any condition that increases the pressure in the intra-abdominal cavity has the potential to cause herniation, including obesity, heavy lifting, coughing, straining with defecation, chronic obstructive pulmonary disease, or a family history of hernias.

A strangulated hernia is a surgical emergency in which the blood supply to the herniated tissue is compromised. Bowel content, for example, passing through the restrictive opening of the inguinal canal eventually decreases venous return, leading to increased tissue edema and further compromising the viability of the hernia contents. Our patient's occupation requires heavy lifting, and his history of IBS and hemorrhoids may predispose him to herniation should he have a congenitally susceptible persistent processus vaginalis.

On physical examination, a strangulated indirect hernia may appear as an erythematous and edematous scrotum, as in our patient. However, the patient also would appear toxic, with possible systemic signs secondary to ischemic bowel. Furthermore, the temporal progression from herniation of intra-abdominal contents into the scrotum and subsequent incarceration and strangulation would not have occurred within the 48 hours between vasectomy and presentation.

The differential diagnosis includes testicular torsion, acute epididymitis, abscess, and hematoma.

## References:

1. Cook LA, Pun A, Gallo MF, Lopez LM, Van Vliet HAAM. Scalpel versus no-scalpel incision for vasectomy. *Cochrane Database Syst Rev.* 2014;(3):CD004112. doi:10.1002/14651858.CD004112.pub4.
2. Li S, Goldstein M, Zhu J, Huber D. The no-scalpel vasectomy. *J Urol.* 1991;145(2):341-344.
3. Sharlip ID, Belker AM, Honig S, et al; American Urological Association. Vasectomy: AUA guideline. *J Urol.* 2012;188(6 suppl):2482-2491.
4. Dogra V, Bhatt S. Acute painful scrotum. *Radiol Clin North Am.* 2004;42(2):349-363.
5. Schmitz D, Safranek S. Clinical inquiries. How useful is a physical exam in diagnosing testicular torsion? *J Fam Pract.* 2009;58(8):433-434.
6. Barbosa JA, Tiseo BC, Barayan GA, et al. Development and initial validation of a scoring system to diagnose testicular torsion in children. *J Urol.* 2013;189(5):1859-1864.
7. Sheth KR, Keays M, Grimsby GM, et al. Diagnosing testicular torsion before urological consultation and imaging: validation of the TWIST score. *J Urol.* 2016;195(6):1870-1876.
8. Paty R, Smith AD. Gangrene and Fournier's gangrene. *Urol Clin North Am.* 1992;19(1):149-162.
9. Rajbhandari SM, Wilson RM. Unusual infections in diabetes. *Diabetes Res Clin Pract.* 1998;39(2):123-128.
10. Sorensen MD, Krieger JN. Fournier's gangrene: epidemiology and outcomes in the general US population. *Urol Int.* 2016;97(3):249-259.
11. Meleney FL. Hemolytic streptococcus gangrene. *Arch Surg.* 1924;9(2):317-364.
12. Moses AE. Necrotizing fasciitis: flesh-eating microbes. *Isr J Med Sci.* 1996;32(9):781-784.
13. Rutkow IM, Robbins AW. Demographic, classificatory, and socioeconomic aspects of hernia repair in the United States. *Surg Clin North Am.* 1993;73(3):413-426.