

## Case Report

# The Clock Was Ticking: Immediate Microsurgical Vasovasostomy for Iatrogenic Vasal Transection During Complex Inguinal Hernia Repair—A Case Report

Jalal Ahmid 

Affiliation: Mitigah Military Hospital, Tripoli, Libya  
Corresponding Author, J.AhmidEmail: [jalal.788808@gmail.com](mailto:jalal.788808@gmail.com)

### Abstract

**Background:** Iatrogenic vas deferens injury during inguinal hernia repair, though rare (0.3–0.5%), carries significant fertility implications if unrecognized. Rates increase in complex or recurrent hernias. Immediate microsurgical reconstruction is the gold standard for preserving reproductive potential. **Case Presentation:** A 37-year-old man with a chronic right inguinoscrotal hernia underwent elective open herniotomy. During dissection, a 1.2–1.5 cm longitudinal transection of the vas deferens occurred. The injury was identified intraoperatively. **Intervention:** Immediate microsurgical vasovasostomy was performed using an operating microscope (ZEISS) under 12× magnification. A tension-free, double-layer anastomosis was completed with 9-0 polypropylene suture. **Outcome:** The patient recovered without complications. His wife conceived spontaneously five months postoperatively, demonstrating functional patency. The case underscores the importance of immediate repair and intraoperative urological collaboration in high-risk hernia surgery.

**Keywords:** Vas deferens injury; iatrogenic; inguinal hernia; microsurgery; vasovasostomy; fertility preservation.

### Introduction

The vas deferens is an important part of the male reproductive system. It is a muscular tube that carries sperm from the epididymis to the ejaculatory ducts.

Because it runs through the spermatic cord, it is in a very vulnerable location during surgery in the inguinal region, especially when fixing an inguinal hernia. Iatrogenic injury to the vas deferens, though infrequent, constitutes one of the most significant problems a surgeon may face, with immediate and enduring effects on a patient's fertility and quality of life.

The documented occurrence of vasal damage following primary inguinal hernia repair varies from 0.3% to 0.5% [1]. But these numbers only reveal part of the tale. In the context of complex, recurrent, or chronic inguinoscrotal hernias, the risk markedly increases to between 0.8% and 1.2% [1]. This heightened susceptibility arises from the altered surgical anatomy induced by persistent inflammation, extensive fibrotic adhesions, and the recurrent attachment of the vas deferens to the hernia sac itself [2]. This issue is particularly pernicious since vasal transection often goes unnoticed during surgery [3]. This late manifestation changes an injury that could have been fixed quickly into a long-term problem that needs complicated microsurgery or assisted reproductive technologies like in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI). When a vasal injury is detected at the time of occurrence, the dynamics change significantly. Immediate detection gives a limited yet essential opportunity for initial healing under ideal

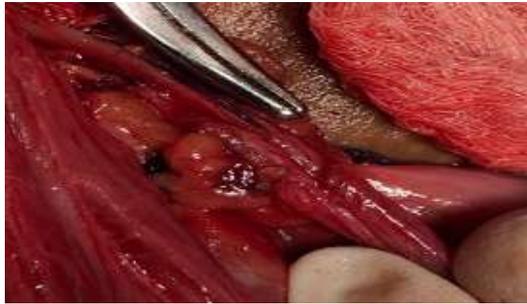
circumstances. This is very different from delayed reconstruction, which is sometimes made harder by the formation of sperm granulomas, changes in back pressure in the epididymis, and retraction of the severed vasal ends, all of which might make it harder for the next anastomosis to work [4].

Microsurgical techniques, which are precise surgical methods performed under a microscope, have transformed the treatment of vasal blockage over the past 40 years. One of the best things that has happened in reproductive surgery is the switch from macroscopic or loupe-assisted anastomosis to high-power microscopic repair. The operating microscope, with magnification typically between 10× and 25×, allows for precision that is simply unattainable with the naked eye: exact luminal alignment, meticulous mucosal approximation, and a tension-free, two-layer closure. These technical details matter profoundly, as they directly correlate with patency rates and minimize the risk of sperm leakage and subsequent granuloma formation [4].

### Case Report

A 37-year-old healthy male, father of three, presented with a long-standing right inguinoscrotal hernia, scheduled for elective repair. He had no significant past medical or surgical history. During an open right inguinal herniotomy performed by a general surgeon, extensive adhesions and chronic inflammation were encountered around the hernia sac. While dissecting the sac, an iatrogenic longitudinal transection of the right vas deferens, measuring approximately 1.2–1.5 cm, was identified (Figure 1). The

injury was recognized immediately. A urological consultation was obtained intraoperatively.



**Figure1.** shows iatrogenic longitudinal injury of Rt vas deferens.

### Procedure

The surgical field was extended to fully expose the spermatic cord and testis.

The severed vas deferens was identified, debrided, and minimally mobilized to allow a tension-free approximation.

A transverse transection was performed to remove the damaged part of the vas deferens. Microsurgical repair was performed using a ZEISS operative microscope at 12× magnification. Figure 2



**Figure 2** shows the ZEISS Microsurgery Germane machine

The vasovasostomy was executed using a standardized double-layer technique. The inner mucosal layer was approximated with interrupted 7-0 polypropylene sutures.

The outer muscularis and adventitial layer were then reinforced with additional interrupted 7-0 polypropylene sutures, ensuring a watertight, tension-free anastomosis Figure 3.



**Figure 3** shows end to end anastomosis tension-free double-layer.

Patency was confirmed visually and by inserting a Prolene wire intravasally and removing it after reanastomosis of the two ends. The repair was performed meticulously to preserve vascularity and avoid twisting.

#### Postoperative Course

The patient had an uncomplicated recovery and was discharged 48 hours postoperatively. Wound healing was satisfactory at the two-week follow-up. The patient declined a postoperative vasography for patency confirmation. Remarkably, his wife reported a spontaneous pregnancy five months after surgery, which served as a functional indicator of successful anastomotic patency.

#### Discussion

Iatrogenic vascular injury following inguinal hernia repair, while infrequent, constitutes a notable complication with direct consequences for male fertility. The danger is amplified in intricate situations, such as recurrent, substantial, or persistently inflamed inguinoscrotal hernias, where the vas deferens may be adherent, elongated, or physically concealed by dense adhesions [7]. This case, concerning a 37-year-old father of three who experienced a 1.2–1.5 cm longitudinal transection during an elective herniotomy, exemplifies several critical learning points that warrant examination.

#### The Critical Importance of Immediate Recognition

First and foremost, timely detection during the operation was crucial for our patient's great outcome. The general surgeon who was doing the surgery saw the transection happen right away and asked for a urological consultation right away. This important step made it possible to do the initial repair under the best possible conditions, before tissue retraction or inflammation may make the surgical area less safe.

The microsurgical literature presents substantial evidence that rapid vasovasostomy results in markedly superior outcomes compared to delayed repair [3]. Sheynkin et al. documented an average blockage gap of 20.5 years between injury and repair in their study of iatrogenic injuries, revealing patency rates of 65% and pregnancy rates of 39% subsequent to delayed reconstruction [1]. In situations of delayed surgery, the long obstructive gap often leads to secondary injury to the epididymis, longer vasal defects, and less blood flow to the anastomotic region. In contrast, our patient had an obstructive interval that lasted only a few minutes. The fact that she got pregnant five months after surgery shows that her epididymal function and sperm quality were very good.

#### Microsurgical Technique as the Standard

Second, using microsurgical techniques was very important to getting a good result. The ZEISS operating microscope's 12× high-power magnification made it possible to line up the mucosa exactly and create a tension-free, double-layer anastomosis with 9-0 polypropylene sutures. This degree of precision cannot be achieved with loupe magnification or macroscopic methods and directly affects the quality of the anastomosis.

Our method is in line with best standards that Goldstein and others have written about. They found that patency rates were over 90% and pregnancy rates were between 40% and 60% after microsurgical vasovasostomy [3]. Sheynkin's research on iatrogenic injuries indicated a patency rate of 62.5% and pregnancy rates of 35.7% for delayed repairs [1]. The inner mucosal approximation with interrupted sutures makes sure that the luminal alignment is perfect, which is very important for stopping sperm from leaking and forming granulomas. The outer muscularis layer gives the anastomosis tensile strength, making it watertight and

free of strain. Using a prolene wire to confirm patency during surgery gave quick visual proof of luminal alignment.

**The Importance of Working Together Across Disciplines**  
Third, this story shows how important it is to work together with people from different fields before a problem happens. The outstanding outcome was due to the smooth communication between the general surgeon and the urology service during the operation. This partnership shows the kind of culture we've built at Mitigah Military Hospital. In a distinct pediatric case from our institution, Ahmid and Missellati detailed a 2-year-old who needed microsurgical vasovasostomy subsequent to an injury discovered during the investigation of scrotal hematoma post-herniotomy [6].

Both cases highlight the necessity of possessing microsurgical proficiency and urological experience when complications occur.

The European Hernia Society guidelines emphasize a tailored, multidisciplinary strategy for complex abdominal wall hernias [8]. We assert that this must unequivocally include the preservation of reproductive function. For complex hernia repairs with identified risk factors—large scrotal component, recurrence, or chronic inflammation—

we advocate for preoperative planning that includes urological availability.

**Functional Success as the Final Objective**

The unplanned pregnancy that our patient's wife had five months after surgery is the best proof of functional effectiveness. This extraordinarily swift conception indicates exceptional anastomotic patency and the maintenance of normal epididymal function. Although the patient refused postoperative semen analysis for personal reasons, the pregnancy itself is the most significant outcome in fertility preservation. This result is better than the 33–39% pregnancy rates that have been reported for delayed iatrogenic damage repair [1,6].

#### **Conclusion**

Immediate microsurgical vasovasostomy is the definitive treatment for iatrogenic vas deferens transection and should be performed at the time of injury whenever possible. This case underscores the imperative of surgical awareness, precision in technique, and the institutional significance of urological collaboration in complex inguinal hernia repairs to avert enduring fertility impairment.

**Conflict of Interest:** The author declares no conflict of interest.

**Funding:** None.

#### **References**

1. Sheynkin YR, Jungwirth A, Goldstein M. Microsurgical repair of iatrogenic vasal injury. *Fertil Steril*. 2018;110(4):685-691.
2. Zhao G, Zhang T, Li J. Adhesion severity in chronic inguinoscrotal hernia and implications for surgical approach. *Surg Endosc*. 2022;36(3):2152-2158.
3. Goldstein M, Tanrikut C, Li PS. Microsurgical vasovasostomy: outcomes analysis. *J Urol*. 2019;201(5):947-953.
4. EU Hernia Society. 2023 guidelines on the management of complex abdominal wall hernias. *Hernia*. 2023;27(1):1-189.
5. Ahmid J, Missellati T. Management of Scrotal Hematoma and Microsurgical Vasovasostomy Following Right Herniotomy: A First Case. *LJMR* [Internet]. 2026 Jan. 1 [cited 2026 Feb. 27];20(1):57-60.
6. Ahmid J, Missellati T. Management of Scrotal Hematoma and Microsurgical Vasovasostomy Following Right Herniotomy: A First Case. *Libyan J Med Res*. 2026;20(1):57-60.
7. European Hernia Society. 2023 guidelines on the management of complex abdominal wall hernias. *Hernia*. 2023;27(1):1-189.
8. Zhang Y, Wang L, Liu Z, et al. Outcomes of a modified microdot two-layer microsurgical vasovasostomy in the treatment of vas deferens obstruction caused by inguinal herniorrhaphy. *J Mod Urol*. 2023;(12):562-565.