

## Male infertility due to vasal obstruction following bilateral open inguinal hernial repair

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**Abstract:** Inguinal vasal obstruction following hernia repair is related to either direct injury to vas or ischemic injury leading to delayed stricture. Herein, we report a case that underwent periodic open inguinal hernia repair to have total occlusion of the lumen of vas segment at the inguinal region presented with primary infertility.

**Keywords:** Inguinal hernia; vassal obstruction; primary infertility

### INTRODUCTION

There are two putative mechanisms involved in genital tract injury, i.e. transection and compression. Transection-related injury accounts for less than 25% of iatrogenic vassal injuries. This form can be recognized during surgery and therefore an opportunity for immediate reconstruction can be offered in suitable centres. Compression type injury usually has a delayed presentation and diagnosis unless there is a concomitant nerve injury producing neuralgia or a vascular injury to the gonads. If no associated injury occurs, then presentation is usually delayed, manifesting as male-factor infertility. Although bilateral repair is primarily causative, an iatrogenic unilateral injury been implicated in infertility in its own right when any contralateral genital tract deficiency is present [1].

### CASE REPORT

A-42 year-old, male underwent bilateral hernial repair. In the first instance right inguinal herniotomy was carried out during his childhood, while the left side inguinal hernial repair was done ten years back elsewhere, presented with primary infertility after been married for about 4 years. Initial investigations revealed presence of azoospermia, so right side vasogram was done that revealed right ejaculatory duct obstruction at a level of inguinal canal, figure 1. Concurrently ipsilateral testicular biopsy was taken that showed normal result. On exploration of the right side dense fibrotic tissue was found in inguinal canal. Then after, right side vasovasostomy was performed during which the explanted vassal segment was sent for histopathological examination that revealed complete occlusion of vasal lumen, figure 2. This was followed by administration of Clomephine citrate 50 mg for one and a half month that led to presence of a few dead sperm on semen analysis. At a third month after usage of Clomephine citrate the repetition of the semen

analysis showed the return of azoospermia again. Five months later, contralateral left side vasogram and testicular biopsy were performed that showed similar result. On exploration of the left side similar dense fibrotic tissue in inguinal canal was found. Similarly explanted vasal segment was sent for histopathological examination. It revealed complete occlusion of vasal lumen.

Patient was pain free in post operative follow up. Repeated semen analysis showed transition from asospermia, oligospemia and finally normo spermia.



Figure 1: Reversed Rt vasogram shows cut off the contrast media.



Figure 2: Exploration of the right inguinal canal that showed dense fibrotic tissue surrounding the right vas difference

## DISCUSSION

The incidence of vasal occlusion in human following any type of hernia surgery ranges from 0.3% to 7.2% in various literatures [2]. The observation by Wantz [3], that bilateral open hernia repair in children is associated with subsequent azoospermia in 2% of all cases, seems to lend credence to this. The incidence of unilateral vas deferens obstruction in subfertile men with a history of paediatric inguinal hernia repair is reported to be as high as 27.8% [4]. Moreover, more than half of patients with vassal obstruction caused by infant inguinal hernia repairs have serum antisperm antibodies and oligozoospermia [5,6]. Yavetz et al [7], in a large series from Tel Aviv, surveyed 8500 men attending for infertility and reported that 565 (6.5%) after herniorrhaphy had poorer sperm quality and increased serum FSH levels (reflecting increased Sertoli cell function) than fertile men. Iatrogenic injuries to the vas deferens are often associated with long obstructive interval, frequent secondary epididymal obstruction, an unpredictable length of occlusion and possible obliteration of normal anatomy [1]. Vasovasostomy and vaso-epididymostomy are commonly used to bypass obstructions in the male genital tract, including those that are iatrogenic. Vasovasostomy is indicated if the obstruction is at the level of the vas deferens, whereas an obstruction at the epididymis necessitates a vaso-epididymostomy. These techniques are not new; the first report of avaso-epididymostomy to relieve an obstructed epididymis was made in 1903 [8]. In 1977, Silber [9] introduced a two-layered microsurgical vassal anastomosis and reported an overall pregnancy rate of 71% and patency rates of up to 94%. He stated that three factors were important for the return of fertility after vasovasostomy; meticulous technique, the duration that the vas was obstructed, and the presence of a sperm granuloma at the site of the obstruction, suggesting that good quality sperm was present in the vassal fluid at the time of reconstruction. These three factors are still regarded as important predictors of surgical outcome; the duration of vassal obstruction is regarded as the most important.

A study of 1469 patients by the Vasovasostomy Study Group reported that if the interval was <3 years, the patency rate was 97% and the pregnancy rate 76%. In contrast, in men who had had the obstruction for >15 years, the rates were 71% and 30%, respectively [10]. Although there is no reported difference in patency or pregnancy rates when comparing one-layered or two-layered microsurgical closures, the pregnancy rate decreases to 30–50% when no magnification is used (macro-surgical

vasovasostomy) [11]. After vaso-epididymostomy, the patency rate and pregnancy rate can be up to 85% and 44%, respectively [12].

Many of the iatrogenic injuries to the vas deferens correspond to the area of the original surgery, and until recently an open incision through the scar usually allowed access to the site of the injury.

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