

## CASE REPORT

# A successful Vasovasostomy operation

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**Abstract**

Vasectomy is performed as a permanent method of contraception for men after completing the family. Many men are seeking vasectomy reversal operations after remarrying new partners. The reversal operation is seen as a challenging procedure that requires a skilled surgeon and sophisticated instruments. This write-up reports a case of vasovasostomy performed successfully on an elderly man using the minimal available facilities at Phuentsholing General Hospital, Bhutan.

**KEYWORDS**

gynecologist, urologist, vasectomy reversal operation, vasovasostomy

## 1 | INTRODUCTION

Vasectomy is one of the permanent methods of contraception for men. It is estimated that 6% of vasectomized men are seeking reversal operations after remarrying or after the demise of the child.<sup>1</sup> A vasectomy reversal operation is performed mainly to regain fertility in men who had undergone vasectomy in the past. Men who had undergone vasectomy under the age of 30 years are more likely to come for reversal operations.<sup>1</sup>

The success or the pregnancy rates following vasectomy reversal operation depends on the skills of the surgeon,<sup>2</sup> the interval between the vasectomy to reversal and the availability of the sophisticated instruments, and the age of the female partners.<sup>3,4</sup> However, the overall pregnancy rate following a vasectomy reversal operation is comparable between skilled urologists and general surgeons,<sup>2</sup> and it varies from 30% to 90%.<sup>4</sup> The vasectomy reversal operations performed under a sophisticated instrument using microsurgical technique has better patency and pregnancy rate as compared to microsurgical or loupe-assisted techniques.<sup>5</sup>

In Bhutan, vasectomy is a widely accepted method of contraception for men with a prevalence rate of 13%.<sup>6</sup> Now

Bhutanese men are coming for vasectomy reversal operations to regain fertility. As of now, the vasectomy reversal operation is seen as a challenging procedure and it is not performed in Bhutan since there is only one urologist and a few general surgeons, and there are no appropriate surgical instruments required for the procedures. However, few Bhutanese men have undergone vasectomy reversal operations in other countries.

This write-up is to report a successful vasectomy reversal operation (vasovasostomy) performed on an elderly man seeking fertility using the limited available surgical instruments at Phuentsholing Hospital, Bhutan.

## 2 | CASE PRESENTATION

A 58 years old man had undergone a vasectomy operation in 1994. He got remarried to a woman of 39 years. The couple wishes to have a child. He came seeking for vasectomy reversal operation after 27 years of vasectomy. Both couples had children from their previous partners. The man had no other medical or surgical co-morbidities. He had not undergone pelvic or inguinal surgery (hernia repairs). On physical examination, no abnormality was

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detected. On examination of the genitalia, the penis was of normal size and shape and the urethral opening was present. There was no scar or thickening along the shaft of the penis. Using the thumb and first two fingers, testes, and epididymis palpation was done. Both the testes were present at a normal position, mobile, and of normal size and consistency. Blind-ended thickened stumps of the vas deferens were felt (sperm granuloma) on both sides, and the vassal defects were palpable. There was no tenderness, varicocele, or hydrocele. The inguinal region was unremarkable. Ultrasonography of the testes showed normal volume and echotexture. The preoperative semen analysis report showed azoospermia.

The vasovasostomy operation was performed under spinal anesthesia. Under the anesthesia, the patient was positioned supine with partial abduction of the hip and flexion at the knee joints. The operative area was painted with 10% betadine solution, and sterile draping was done. Using the thumb and the first two fingers, the two ends of the vas deferens were identified with manipulation of the scrotum. Vas deferens were grasped with a ring vasectomy fixation clamp. A skin incision was performed using a No 11 scalpel blade perpendicularly to the localized vas deferens avoiding damage to vascular and surrounding tissues. The vas deferens were exteriorized and dissected from the surrounding tissues (Figure 1).

The thickened ends of the vassal defects were excised using micro scissors. A small amount of vassal fluid was collected from the testicular end of the vas deferens. The fluid was spread on a glass slide and examined under the microscope for the presence of spermatozoa. There were few motile spermatozoa present in the vassal fluid. The abdominal end of the vas deferens was cannulated with a 24-gauge venous catheter. The catheter was attached to a 2 ml syringe filled with 1 ml of saline solution. The saline was injected gently and checked for patency (Figure 2).



FIGURE 1 Localizing and exteriorizing vas deferens

While injecting the saline, no resistance was felt, and backflow of the saline was not observed. Both the abdominal ends of the vas deferens were found patent. Tension-free end-to-end anastomosis was done using Vicryl 6–0 interrupted suture (Figure 3).

End-to-end anastomosis was done in two layers; the first layer to appose the mucosal layer and the second layer to appose the seromuscular layer. The mucosal layer was apposed using Vicryl 6–0, and interrupted four stitches were placed at equidistance and held with the micro mosquito forceps. The stitches were tightened after all four stitches were placed and the knots were placed outside the lumen. The seromuscular layer was apposed using separate Vicryl 6–0 sutures by applying another four to five interrupted stitches. End-to-end anastomosis was done using fine microsurgical instruments available under bright illumination. There was no surgical loupe or microscopic lens.

The skin was closed with Vicryl 4–0 interrupted suture. The same procedure was repeated on the other side



FIGURE 2 Cannulation of proximal checking for patency



FIGURE 3 Tension-free two layers end-to-end anatomizes done

as well. Scrotal support was applied. The patient was kept in the ward for 24 h resting in a lying down position monitoring for pain and swelling of the scrotum. After 24 h, the scrotal support was released, and examined scrotum for swelling or bleeding. The patient was discharged home with the advice to wear tight underwear and avoid heavy strenuous work, avoid lifting heavy objects, and report back to the hospital after 4 weeks for semen analysis.

Semen analysis was done 4 weeks after the vasectomy reversal operation. Parameters in the semen report were found within the normal range with semen volume of 1.5 ml, sperm concentration of 15 million/ml, progressive motility of 32%, and normal morphology of 4%.

The preconceptional counseling was done, and folic acid supplementation was started. The couple conceived 4 months after the reversal operation. The antenatal care was done as per the schedule; however, fetal growth restriction was diagnosed after 28 weeks of gestation. Maternal monitoring and fetal surveillance were done more frequently with Doppler studies (umbilical artery Doppler, middle cerebral artery Doppler, ductus venous Doppler, and umbilical venous Doppler), cardiotocography, and biophysical profile. The baby was delivered by cesarean section at 38 weeks and delivered a healthy male baby weighing 2400 gram.

### 3 | DISCUSSION

Vasectomy reversal operation was successfully performed using the limited surgical instruments available at the Phuentsholing General Hospital, Bhutan. This write-up reports the first case of vasectomy reversal performed in Bhutan using microsurgical instruments under bright illumination without surgical loupes or microscopic lense. There could be many countries in the world similar to Bhutan in terms of scarcity of resources and instruments to perform fine surgical procedures; however, similar vasectomy reversal operations performed under bright illumination using available surgical instruments are not available in the literature. Most of the published literature describes about the advanced sophisticated surgical instruments and robotic assistance used for vasectomy reversal procedures.<sup>7,8</sup>

With the increasing divorce rate in Bhutan, men who underwent vasectomy are seeking reversal procedures after remarrying to new partners. In Bhutan, vasectomized men are generally seeking for fertility reversal procedure with a joint decision to have a child, while in other countries men are seeking the procedure to relieve the pain of post-vasectomy pain syndrome in addition to regaining male fertility.<sup>4</sup>

In the current case, the man had undergone vasectomy 27 years ago and remarried a woman of 39 years old. Taking into consideration of the very long intervals between the vasectomy and the reversal procedures, and the age of the female partners, the pregnancy rate or the success rate of the reversal operation was negligible. As previous studies have shown that the patency rate and the pregnancy rate are inversely dependent on the intervals between the vasectomy and the reversal procedure,<sup>3</sup> however, the current case has proven otherwise.

There are two types of vasectomy reversal operations commonly performed, which are vasovasostomy and vasoepididymostomy.<sup>9</sup> The decision to perform the types of reversal operations will depend on the per-operative finding. If the vassal fluid collected from the testicular end contains spermatozoa and the abdominal end of the vas deferens is patent, a vasovasostomy procedure is performed; otherwise, if vassal fluid is thick, viscous, opaque, and does not contain spermatozoa, vasoepididymostomy is usually performed.<sup>10</sup> Vasoepididymostomy is generally considered to be technically challenging due to the small size of the lumen of the epididymis as compared to vasovasostomy reversal procedures. The vasectomy reversal procedure is technically challenging and requires sophisticated instruments and expertise to operate.<sup>1,4</sup> The outcome of the vasectomy reversal operation is better with the better technology and sophisticated instruments used.<sup>11</sup>

Some studies have compared the vasectomy reversal procedures performed on unilateral to bilateral sides, and the patency rate was comparable between the two methods; however, the pregnancy rate was comparably more with the procedures performed on both sides.<sup>12</sup> In the current case, the vasovasostomy procedure was performed on bilateral sides since there was a vassal stump present on both sides.

In the resource constraint country like Bhutan, vasectomy reversal operation is a neglected field; despite the constraints in resources and the lack of skilled urologists, vasectomy reversal operation is the field of interest for gynecologists and general surgeons to take up the field and start providing services of reversal operations to the Bhutanese men who come for regaining male fertility. Every service in the medical field starts with difficulty, and slowly the services improve over time; therefore, vasectomy reversal operation services should begin in Bhutan with this write-up as backup shreds of evidence of the services.

### AUTHOR CONTRIBUTIONS

YD is involved in the conception, consent, data collection, manuscript writing, and submission for publication.

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## CONFLICT OF INTEREST

The author does not have a conflict of interest to declare.

## DATA AVAILABILITY STATEMENT

The data that support this writing is available from the corresponding author upon reasonable request.

## CONSENT

The informed written consent has been obtained from the patient to collect the case history, collect the data, take the pictures, and write a case report for publication in the medical journals.

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