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## **Causes of Male Re-canalisation (Vasovasostomy (Reversal Surgery)) in Vasectomy Client in Nepal**

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### **Abstract**

Re-canalisation is the process of restoring flow to or reuniting an interrupted channel of a bodily tube (as a blood vessel or vas deferens) In Nepal in 2012–2013 surgeons performed 20,588 vasectomies with an incidence of 1.64 new acceptors per 100 women of reproductive age. Divorce rate is getting high as women are empowered (education, job), they can depend on themselves. The purpose of the study was two-fold. Firstly it was to assess the suitability for male recanalization and factors predicting for recanalization. Secondly, it was to analyze the reasons following vasectomies recanalization. Both qualitative and quantitative methods were used with 18 Key in-depth Interview, 111 men at a FPAN central clinic Lalitpur and Valley branch Koteswor seeking vasectomy sterilization reversal between May 2011 and May 2014. Results showed that individual excised the Re-canalisation ranged from 27 to 54 years with median age of 38. On the address of the respondents for the recanalization 66.7 percent were from outside valley followed by 33.3 percent from inside valley. On the cause of recanalization, 51.7% of the respondents were second marriage followed by 27.6%. The association between Children and cause of recanalization is statistically significant ( $P=0.046$ ) with Cramer's strength of association of 56.4%. Labor migrant are main restorant due to divorce, change of life style and the income. It was concluded that the commonest cause of the recanalization is second marriage. The risk of recanalization and its implications should be explained to the patient.

**Key words:** Methods, Pregnancy rate, Sterilization reversal, Tubal recanalization, Vasectomy

### **Introduction**

Vasovasotomy is the preferred reversal surgery because it reconnects the vas deferens where it was originally cut. However, if there is inflammation, blockage, or scarring in the tubes, the reconnection is not between the two tubes, but rather from the tube to the epididymis. This technique basically reroutes the vas deferens.

Worldwide, voluntary sterilization (VS) is the most popular and most effective method of contraception. Of the approximately 253 million couples who rely on sterilization for contraception, about 43 million of these couples use vasectomy. In addition to being permanent, VS is safe and relatively free of side effects. The most important aspect

of the procedure, however, relates to its permanence. Clients must understand that sterilization is permanent contraception, and counselors must be able to communicate this idea effectively.<sup>1</sup>

Vasectomy has been used widely for more than a century as a contraceptive method (especially since the late 1960s and early 1970s), occasionally for compulsory male sterilization for eugenic reasons or as a treatment for prevention of epididymitis in prostatic surgery or for rejuvenation. It has been estimated that up to 100 million men worldwide might have chosen vasectomy as a means of fertility control. Late recanalization became recognized after six such failures were reported in 1984.<sup>2</sup>

Vasectomy can be surgically reversed, and a patency (return of spermatozoa to the ejaculate) rate of 86% (median; range: 77–100%; mean 6 SEM: 87 6 3%) and a pregnancy rate of 52% (median; range 28–82%; mean 55 6 6%) have been obtained after microsurgical vasovasostomy. This natural vasectomy reversal can occur after any vasectomy surgical procedure, but it is a very rare event. It develops in only about .025% or one in 4,000 vasectomies. Recanalization has been known to occur as soon as a man has achieved a zero sperm count and as late as 17 months after vasectomy. Men should have a follow-up examination a year after the procedure to be sure that there are no residual or new sperm. Although physicians urge men to return for such follow-up testing, in one study only 3% did so. Vasectomy is the safest, easiest, cheapest, most effective, and most reliable. It is usually uncomplicated; the discomfort after surgery usually abates promptly and there are generally no sequelae. Vasectomy is the method most commonly used in men for voluntary sterilization purposes.<sup>3</sup>

Vasectomy reversals are often incorrectly thought of as simply a reconnection of the severed vas deferens. Vasovasostomy is just means reconnecting the vas. Simply “reconnecting the vas” is not enough to restore fertility to most vasectomized men. Vasectomy Reversal is a procedure (first invented and reported by Dr. Sherman Silber in 1975) which allows men who have previously undergone vasectomy to become fertile again. The vas deferens is microsurgically reconnected and the epididymal blowouts are microsurgically bypassed, allowing sperm to travel out of the epididymis and into the ejaculate. In 85% of vasectomy patients blowouts are found in the epididymis. So failure to correct or bypass these blowouts leads to poor success rates. But with proper attention to these details 98% of men have a return of fertility. It is important to realize that the testicles and the scrotum are a very private and sensitive area for most men. You don't want to have a compromised procedure on that area of the body performed in the “procedure room” of an office based clinic, rather than in a proper operating room of a high quality hospital.<sup>2</sup>

Vasectomy Reversal Success Rates	
Years After Vasectomy	% With Sperm Postop
0-3 Years	98%
4-6 Years	96%
7-10 Years	92%
11-15 Years	89%
16-20 Years	83%
Over 20 Years	78%

The decline in success rates with years after vasectomy is in part a reflection of the greater chance of requiring an epididymal repair when the time after vasectomy is longer. Because epididymal repairs are technically very demanding and have a higher failure.<sup>4</sup>

#### **About recanalization/ (vasovasostomy (reversal surgery))**

For anyone who has had a vasectomy, or even one or more previous failed vasectomy reversals, the simplest, most cost-effective approach, as well as the best chance for a pregnancy would still be for me to reconnect your ducts microsurgically. This involves no greater surgical discomfort than the sperm aspiration and gives a 98% chance for a successful return of fertility, as compared to a 40% pregnancy and delivery rate per treatment cycle with sperm aspiration and ICSI. However, by having the ICSI option available as backup, virtually a 100% chance of success so long as the wife is fertile. Therefore, we do make sure to offer you the benefit of both vasectomy reversal and ICSI. Spousal age was an important predictive factor after vasectomy reversal among patients with reversals 15 years or more after their vasectomy. If failures are more common following the initial vasectomy reversal in men with a different female partner or an older partner, these findings raise the question of whether repeat vasectomy reversal should be considered for this specific group.

#### **Statement of Problems**

Microsurgical vasectomy reversal is one of the most challenging operations in all of surgery, because of the extremely small size and delicacy of the structures being reconstructed. This is particularly true when the epididymis needs repair, where the wall of the epididymal tubule is only about 1/4 the diameter of a human hair. Doubts have been expressed about the long-term safety of vasectomy because studies conducted in the USA have claimed that vasectomy is associated with an increased risk of prostate carcinoma.

This surgery requires a great deal of practice, because of the delicate manipulations involved. In addition to enhancing the likelihood of success, performing this surgery delicately allows there to be less pain and swelling postoperatively, with a quicker and more comfortable recovery. In fact, the pain postoperatively should be minor IF proper attention is paid to all these details. After the operation, 98% of patients develop normal sperm count and sperm motility, indicating fertility. 88% achieve pregnancy without further treatment. The success rate for those patients, who have had previous unsuccessful surgery elsewhere and come here for a re-operation, is no different from patients who are undergoing vasectomy reversal here for the first time.<sup>4</sup>

Vasectomy Reversals Fail due to technically poor repair, inadequate blood supply to the vas failure to recognize and repair epididymal obstruction, extremely high epididymal obstruction and other infertility problems.

Vasectomy reversal is often incorrectly thought of as simply a reconnection of the severed vas deferens. In fact, the term many doctors mistakenly use for the reversal of vasectomy is “vasovasostomy”. But vasovasostomy just means reconnecting the vas. Simply “reconnecting the vas” is not enough to restore fertility to most vasectomized men. The reason for so many failures of vasectomy reversal, even with “microsurgery”, is that in over 80 per cent of cases the pressure buildup inside the vas (caused by the original vasectomy) results in microscopic “blowouts” and

“concretions” in the more delicate ductwork closer to the testicle (called the “epididymis”) which is where the sperm leave the testis on their way to the vas. If this complex, truly more delicate pathway, the epididymis, is not microscopically bypassed, the vasovasostomy will not work, because the sperm still cannot get to the site of the vas reconnection. They are blocked from even reaching the vasovasostomy site because the more delicate ductwork closer to the testicle remains blocked. So the routinely performed vasovasostomy was destined never to work no matter how accurate the reconnection.<sup>2</sup>

Vasectomy Knowledge and Use although vasectomy is very safe, highly effective, and a simple surgical form of contraception for men, it remains the least known and least used modern contraceptive method. Worldwide, it is estimated that more than 28 million women of reproductive age who are married or in union rely on their partner’s vasectomy for contraception, accounting for fewer than 3 percent of women of reproductive age who are married or in union.<sup>5</sup>

### **Objective/purpose:**

The purpose of the study was two-fold. Firstly it was to assess the suitability for vasectomy sterilization reversal and factors predicting for vasectomy sterilization reversal. Secondly, it was to analyze the reasons following vasectomy sterilization reversal. The purpose of our study is to report our experience with vasectomy spontaneous recanalization among patients treated with vasectomy for sterilization purposes.

### **Materials and Methods**

Vasectomy sterilization reversal clients who are willing to recanalization (Vasovasostomy (Reversal Surgery) are the study population in this study. Both Quantitative and qualitative was used for the cause of Vasovasostomy (Reversal Surgery). Descriptive, Prospective cohort (forward looking) study was done among **111** men at a FPAN central clinic lalitpur and FPAN Valley branch Koteshwor seeking vasectomy sterilization Between May 2011 and May 2014, different data collection techniques like trend of Reversal Surgery in the three years, 111 vasectomy sterilization reversal, 7 case study and 18 Key in-depth Interview, observation, secondary data analysis of previous years was done. Questionnaire, Observation Check list, Key in-depth guidelines was used as the data collection tools. All the cases were drawn from the operative pool of a single surgeon (J.S.P). Vasectomy procedure was performed under local anesthesia by a single physician (EDSM). FPAN institution has a standard protocol for the performance of vasectomy after referral that includes counseling and informed consent. And verbal consent was taken from the respondent (Clients). Ethical approval was taken from FPAN and concerned clinics and verbal informed consent was taken from each respondent (clients). They were assured for the anonymity and confidentiality of the information and allowed to refuse to participate in the study at any time if they wish.

### **Results**

#### **1. Socio demographic characteristics**

Individual excised the Re-canalization ranged from 27 to 54 years with median age of 38 and the mean  $\pm$  standard deviation  $37.83 \pm 5.464$ . The median age of spouse was 29 and the mean  $\pm$  standard deviation  $28.83 \pm 4.743$ . The

mean number of children for each spouse was the mean  $\pm$  standard deviation  $2.22 \pm 1.06$ . On the address (place) of the respondents for the recanalization, 66.7 percent of the clients were from outside of Kathmandu, Nepal followed by 33.3 percent of clients were from inside valley of Kathmandu, Nepal.

Out of total respondents, about 38.9 percent of the respondents were 2 children followed by 27.8 percent have 1 child and remaining 33.4 percent of the respondents have 3 or more than 3 children's. The means number of children's of the Vasectomy sterilization reversal clients was mean  $\pm$  standard deviation  $2.22 \pm 1.06$ .

A higher incidence of divorce and remarriage has brought more attention to the study of factors affecting the success rate of vasectomy reversal. It concluded that the success of vasectomy reversal is dependent on female factors, such as age.

## 2. Causes of recanalization

On the causes of recanalization, 51.7% of the respondents (clients) who were done Vasectomy reversals were second marriage followed by 27.6% of the respondents (clients) was child deaths on accidents. About 15.3% of the respondents (clients) who were done Vasectomy reversals were couple wants of another child and only 1% of the respondents (clients) were male child death.

40 years old Ram Chandra Dongol (named changed) from Khokana VDC of Lalitpur, who works in furniture factory as a laborer. He had a 6-year old son, who was dead in a road accident, while he was playing. Due to this unfortunate incident, this family is going through deep mental depression, and this must be the reason Mr. Ram Dongol (named changed) was seeking for another child for which he made his visit to our central office.

Mr. Puskar Tamang (named changed) 35 years old man from Dhading district came for recanalization. He got married on 2053. His first marriage lasted for 15 years. In 2006; he went Malaysia as a labor migrant in restaurant. According to him, he has sent nearly 10 lakh rupees to his wife. During his stay in Malaysia, his wife has affair with another man in Nepal. They have two children; a boy 15 year & a girl 12 year. They have divorced last year. She took herself both their child and don't let him to meet since then. Whenever, he want to meet the child, she did not allow him and tries the news the he is trying to kidnap them. So, he got 2<sup>nd</sup> married last year with 20 year old Kamala tamang magar (named changed). In this connection, they came for Recanalization. Both are planning to go to Malaysia within 3 months.

One of the respondents from Sarlahi, express his expression that pregnancy can also occur because the provider mistakenly cuts the wrong structure and not the vas or because the provider cuts the same vas twice and leaves one uncut. These kinds of mistakes are rare.

Mr. Surendra Deuja (named changed) 44 years old from Kapan-3 Kathmandu has a Son and a daughter. He works at Government office as a computer operator on contract basis since 20 years. When His son was 9 years old, he starts to complain headache. They though it was normal headache and goes for 6 to 7 years. At 16 years, he again fell severe headache and weakness, so they consult doctor and did all blood test. His blood test reveal platelets count to 80000 (Eighty thousands) and within 6-7 month later it comes down to 37000. But the doctor could not diagnose. And He died at age 17 years. This reason Mr. Surendra Deuja (named changed) came to FPAN for Recanalization services. He did Semen analysis 2 week back. His semen count was as follows: Volume -1.5, PH-Alkaline, Mortality-15%, Total Spermatozoa count-10 mill/ml

Mr. Man Bahadur Giri (name changed) 35 years old from Tulsipur of Dang District has done Vasectomy on 2000 (11 years back) while he was working in India. He has a 12 years son and 15 years daughter. In 2005 he went to Malaysia as a labour migrant and worked 7 years in Malaysia. He returned to Nepal in avocation for two times. While he was in Malaysia his wife has affair with another person and spends nearly 7 to 8 lakh rupees send by him. So he divorced with her first wife 2 years back. Last time he returned back to Nepal 22 days ago and married with female from Rukum district of Nepal. This reason Mr. Giri came to FPAN for Recanalization services.

### 3. Feeling towards recanalization

The cause of pain is unknown; one of the respondents shows his feeling as recanalization does not affect a man's sexual performance. There will be the chance of fertilization. I will try to get 2 children after this recanalization. After the recanalization he express like that recanalization is very safe, highly effective, and a simple surgical form of contraception for men, it remains the least known and least used modern method. I am feeling proud to be the refertile again.

### 4. Trends of Recanalization

These data shows that recanalization was started from the year 2050 B.S. There is some fluctuation in some years but it is in the increasing trends.

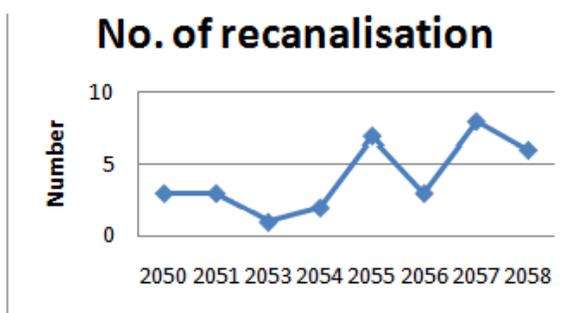


Fig 1: Trends of recanalization

### 5. Association between address and causes of recanalization

Address of respondents	Cause for <u>Recanalization</u>					
	Second Marriage	Child death on accident	Wants another child	Male Death	Child	Total
outside valley	45	17	12	0		74
Inside valley	19	11	6	1		37
Total	64	28	18	1		111

### 5. Association between children and cause of recanalization

The association between Children and cause of recanalization is statistically significant ( $P=0.046$ ) with Cramer's strength of association of 56.4%. Labor migrant are main restorant due to divorce, change of life style and the income.

## Discussion

Early recanalization was first described in 1969 and is recognized by the fact that the first post vasectomy sperm count may be zero or greatly reduced and then increase rapidly. Vasectomy sterilization is currently the most popular form of birth control in Nepal. Vasectomy is performed as an outpatient procedure and the number of people relying on it as a method of contraception varies widely from country to country.<sup>6</sup>

A study done by Soowoongkim, et al. in A Different Female Partner Does Not Affect the Success of Second Vasectomy Reversal in Seoul, Korea describes that approximately 38% of men who undergo vasovasostomy will fail to achieve pregnancy with their partner despite adequate postoperative sperm concentrations. Considering the success rates of assisted reproductive techniques, one should be able to give advice to these patients regarding the option of reoperation. The success rates, costs, and possible complications are important factors in the couples' decision on treatment options. This is an important fact to consider when counseling this specific group on their treatment options for having biologic children. Second marriage cases are increasing in trend due to increasing socio-economic status of general population. Nowadays, there is no method to predict spontaneous recanalization after vasectomy; therefore, it is important to make clear that there is a small risk of pregnancy even when azoospermia has been demonstrated. Because of the possibility of recanalization, different techniques have been described with a view to avoiding this complication.<sup>7</sup>

A higher incidence of divorce and remarriage has brought more attention to the study of factors affecting the success rate of vasectomy reversal. Several investigators have concluded that the success of vasectomy reversal is dependent on female factors, such as age. The ovarian reserve decreases with advancing age, and so age is one of the most critical factors affecting female fertility potential.<sup>8</sup>

The vasectomy techniques and failure rates vary among surgeons and the criteria to clarify any failure are not clearly defined. There was no association between the length of vas segment excised and the risk of recanalization. We concluded that NSV method was a safe and highly effective procedure for male contraception. The complications were minor and infrequent. The success rate in our hands was more than 96%, similar to the other studies. Although, the failure rate was low but the couple should be warned. The possibility of recanalization, late failure and occurrence of pregnancy suggest that the procedure should be performed by skilled specialists in well-equipped centers.<sup>9</sup>

The potential public health impact in developing countries is small because of the low incidence of prostate cancer in these countries. The potential health impact will remain small even if vasectomy is widely practiced. Divorce rate is getting high as women are empowered (education, job), they can depend on themselves.<sup>10</sup>

A study done by S. Thapa and T. M. Vaidya on the topic Vasectomy reversal in Nepal reveals that Data from 157 men in Nepal who had vasectomy reversal are analyzed. Most sought reversal within 5 years of vasectomy. Half of the men sought reversal because of the death of a male child, and about one-fourth because of the loss of a female child. Re-marriage was the primary reason for only 10% of the men. Those having reversal because of the loss of a male child were generally younger, and for almost half of this group, the age of their last child at the time of their vasectomy was under 2 years.<sup>11</sup>

## Conclusion

We concluded that NSV method was a safe and highly effective procedure for male contraception. The commonest cause of the recanalization is second marriage. The risk of recanalization and its implications should be explained to the patient. The complications were minor and infrequent. The success rate in our hands was more. The possibility of recanalization, late failure and occurrence of pregnancy suggest that the procedure should be performed by skilled specialists in well-equipped centers. Rate for the recanalization (operation) should be appropriate and balanced in all types of services providers. There should be provide incentive provision to the Second marriage and Rate for the Operation should be appropriate and balanced in all types of services providers. The results suggest that the demand for reversal could be considerably reduced by more careful screening of the potential vasectomy acceptors. These types of topic should be propagating by giving different programs on televisions, Radios and Newspapers.<sup>12</sup>

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## References

1. No-scalpel vasectomy reference manual, Government of Nepal ,Ministry of Health and Population, National Health Training Center May 2006, No-Scalpel Vasectomy for Nepal
2. B. Peng, R. D. Zhang, et al. Quantitative (stereological) study of the effects of vasectomy on spermatogenesis in rhesus monkeys (*Macacamulatta*), *Reproduction* (2002) 124, 847–856
3. Lucon, A.M., Pasqualotto, F.F., et al. (2006) Spontaneous recanalization after vasectomy. *TSW Urology* 1, 71–74. DOI 10.1100/tswurol.2006.58.
4. Silber's. Microscopic Vasectomy Reversal 30 Years Later: A Summary of 4010 Cases by the Same Surgeon. *Journal of Andrology*, Nov/Deec 2004.
5. SOO WOONG KIM, JA HYEON KU, et al. A Different Female Partner Does Not Affect the Success of Second Vasectomy Reversal, *J Androl* 2005;26:48–52
6. Wildschut H.I.J., Monincx W., Vasectomy and the risk of prostate cancer; *Bulletin of the World Health Organization*, 1994, 72 (5): 777-778
7. S. Shakeri, M. Yazdani. Et al, Failure rate of no-scalpel vasectomy in prevention of pregnancy in Shiraz, Southern Iran, *JRMS* 2006; 11(3):198-201
8. H.I.J. Wildschut, W. Monincx. Vasectomy and the risk of prostate cancer, *Bulletin of the World Health Organization*, 1994, 72 (5): 777-778
9. Hanley, H.G. (1968) Vasectomy for voluntary male sterilisation. *Lancet* 2(7561), 207–209.
10. Pandey A, Maharjan O, et al. Effects of Different Educational Intervention on Awareness about HIV/AIDS among School Going Adolescents; 2014; *IJSTE*: 1(1); 5-10.
11. Thapa S, Vaidya TM. Vasectomy reversal in Nepal, *Journal of Biosocial Science*, 1990, 22(4):423-432
12. Pandey A, Challenges experienced by adolescent girls while menstruation in Kathmandu, Valley. A qualitative study *IOSR-JNHS* 2014; 3(2): 41-45.