

Original Research Article

A comparative study of scalpel versus no scalpel vasectomy

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Received: 09 March 2018

Accepted: 24 March 2018

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ABSTRACT

Background: The objective of this study was to compare the standard vasectomy method and no scalpel vasectomy and complications, effectiveness, safety and acceptability of standard vasectomy (SV) versus no-scalpel standard vasectomy (NSV).

Methods: Informed man who does not want to become father of any children and who desires an inexpensive outpatient method of voluntary permanent surgical sterilization, explain to patient and his wife regarding both procedure, semen analysis done after 3 months in every patient.

Results: In NSV 72% patients required 10 to 20 minutes and in SV 100% required 20 to 35 minutes operative time. NSV, out of which 28% and in SV performed 60% having perioperative pain. NSV only 8% and 40% in SV having pain during follow up. In NSV average analgesic requirement was 2-3 days while among SV average analgesic requirement was 6-8 days. NSV, average antibiotic requirement was 5 days while among SV average antibiotic requirement was 7-10 days. In NSV 8% and in SV 32% were having infection during follow up. In NSV 8% having wound problem during follow-up. In SV 32% having wound problem during follow-up. NSV 0% and in SV 4% having vasectomy failure.

Conclusions: Compared to the standard vasectomy technique, the no-scalpel vasectomy approach to the vas resulted in less bleeding, less pain during or after the procedure, and infection, as well as a shorter operative time, no longer day's analgesic and antibiotic requirement and a more rapid resumption of sexual activity.

Keywords: No scalpel vasectomy, Standard vasectomy, Vasectomy

INTRODUCTION

Vasectomy is a form of birth control for men that are meant to be permanent. During vasectomy, a health care provider closes or blocks the tubes that carry sperm. When the tubes are closed, sperm cannot leave a man's body and cause pregnancy. Sperm are made in the testicles. They pass through two tubes called the vasa deferential to other glands and mix with seminal fluids to form semen. Vasectomy blocks each vas deferens and keeps sperm out of the seminal fluid. The sperm are absorbed by the body instead of being ejaculated.

Without sperm, your "cum" (ejaculate) cannot cause pregnancy.¹ Effectiveness is an important and common concern when choosing a birth control method. Each ductus deferens is supplied by the artery of vas deferens, which branches out of the superior vesicle artery. Each ductus deferens is a tube that is approximately 30 centimeters in length and protected by smooth muscle mass.²

Vasectomy is the most effective birth control method for men. It is nearly 100 percent effective. However, vasectomy is not immediately effective. Sperm remains beyond the blocked tubes. You must use other birth

control until the sperm are used up. It usually takes about three months. A simple test semen analysis shows when there are no more sperm in your ejaculate. You will provide a sample of your semen by masturbating or by using a special condom during sexual intercourse.

The semen will be examined under a microscope to see if there is any sperm. Sample of semen is to be collected by means of masturbation. Very rarely, tubes grow back together again, and pregnancy may occur. This happens in about 1 out of 1,000 cases.³

Keep in mind that vasectomy offers no protection against sexually transmitted infection. Sexually transmitted infections can be carried in ejaculate, whether or not it contains sperm. Latex or female condoms can reduce your risk of infection. Vasectomy is safe and, because it lasts for life, it is simple and convenient.

It allows women and men to enjoy sex without worrying about pregnancy. Vasectomy does not change your hormones or masculinity. And it will not affect your ability to get and stay erect. It also will not affect your sex organs, sexuality, and sexual pleasure.

No glands or organs are removed or altered. Hormones and sperm continue being produced. Ejaculate will look just like it always did and there will be about the same amount as before. Vasectomy can be performed in almost any facility.⁴

METHODS

The present study has been carried out in Guru Gobind Singh Hospital Jamnagar during Jun 2013 to August 2016, retrospective study. Participants 50 participants aged 30-55 years with completed family among them patient were divided in two groups by envelop method of randomization, Interventions Standard Vasectomy (N=25) versus no-scalpel vasectomy (nsv) (N=25). Procedure done under local anesthesia, in standard

vasectomy small incision put in no-scalpel vasectomy no need to put incision.

Complication very less developed in both procedure, total duration of operation noted in both procedure. Prophylactic oral antibiotic given, analgesic given for 12 hours interval as per patient need.

Patient were observed for any complication postoperative pain wound infection and vasectomy failure. Patient was discharge on the day of procedure advice to follow up within 7 days for stitch remove in SV patient and after following up after 1 month for semen analysis.

Inclusion criteria

- Fully informed man who does not want to become father of any children (or any additional children).
- A man who desires an inexpensive outpatient method of voluntary permanent surgical sterilization.

Exclusion criteria

- Anatomic abnormalities, such as inability to palpate and mobilize both vas deferens or large hydroceles or varicoceles or inguinoscrotal hernia past trauma and scarring of the scrotum acute local scrotal skin infections informed written consent taken explain to patient and his wife regarding both procedure and selected one by NSV.
- By standard vasectomy semen analysis done after 3 months in every patient.⁵

RESULTS

Table 1, present study of 25 patients of NSV 18 patients (72%) required 10 to 20 minutes and rest of the 7 patients (28%) required 20 to 35 minutes. In standard vasectomy 25 patients (100%) required 20 to 35 minutes. So, the NSV required less surgery time (OR 0.0484, 95% CI 0.0026 to 0.9010).

Table 1: Operative time.

Procedure	Total number of patients	Patient having operative time		Patient having operative time	
		10 to 20 minutes	20 to 35 minutes	10 to 20 minutes	20 to 35 minutes
No scalpel vasectomy	25	18	7	72%	28%
Standard vasectomy	25	0	25	0%	100%

Table 2, study of 25 patients performed NSV, out of which 7 patients (28%) and in standard vasectomy performed 25 patients, out of which 15 patients (60%) having perioperative pain, so above finding suggest that the NSV was less likely to report perioperative pain then the standard vasectomy group (OR 3.8571, 95% CI

1.1802 to 12.6063). Table 3, out of 50 patients, 25 patients performed NSV and 25 patients performed standard vasectomy. Among NSV only 2 patients (8%) and 10 patients (40%) in standard vasectomy having pain during follow up.

Table 2: Patients having perioperative pain.

Procedure	Total no. of patients	Patients having perioperative pain	% of patient having perioperative pain
No scalpel vasectomy	25	7	28
Standard vasectomy	25	15	60

So, the NSV group had less pain during follow up then the standard group (OR 7.6667, 95% CI 1.4699 to 39.9879).

Table 3: Patients having pain during follow up.

Procedure	Total no. of patients	Patients having pain during follow up	% of patients having pain during follow up
No scalpel vasectomy	25	2	8
Standard vasectomy	25	10	40

Table 4, out of 50 participants 50% were performed NSV and 50% were performed standard vasectomy. Among NSV, average analgesic requirement was 2-3 days while among standard vasectomy average analgesic requirement was 6-8 days, which is highly significant (chi square =46.080, P<0.001).

Table 4: Post-operative analgesic requirement.

Patients having post-operative analgesic requirement	No-scalpel vasectomy	Standard vasectomy	Total no. of patients
<4 days	25	0	25
>4 days	0	25	25

Table 5, out of 50 participants 50% were performed NSV and 50% were performed standard vasectomy.

Table 5: Patients having post-operative antibiotic requirement.

Procedure	Patients having post-operative antibiotic requirement average 5 days	Patients having post-operative antibiotic requirement average 7-10 days	Total no. of patients
No scalpel vasectomy	23	2	25
Standard vasectomy	0	25	25

Among NSV, average antibiotic requirement was 5 days while among standard vasectomy average antibiotic requirement was 7-10 days is highly significant (chi square =42.59, P<0.0001).

Table 6, study suggest that, In NSV, out of 25 patients, 2 patients (8%) and in standard vasectomy, out of 25 patients, 8 patients (32%) were having infection (hematoma) during follow up.

So, the occurrence of infection during follow up is less in NSV as to compared standard vasectomy (OR 5.4118, 95% CI 1.10172 to 28.7921)

Table 6: Patients having infection during follow up.

Procedure	Total no. of patients	Patients having infection during follow up	% of patients having infection during follow up
No scalpel vasectomy	25	2	8
Standard vasectomy	25	8	32

Table 7, suggest that in NSV out of 25 patients, 2 patients (8%) having wound problem during follow-up. In standard vasectomy, out of 25 patients, 8 patients (32%) having wound problem during follow-up. The occurrence of wound problem is less in NSV as compared to standard vasectomy (OR 5.411, 95% CI 1.0172 to 28.79).

Table 7: Patients having wound problems during follow up.

Procedure	Total no. of patients	Patients having wound problems during follow up	% of patients having wound problems during follow up
No scalpel vasectomy	25	2	8
Standard vasectomy	25	8	32

Table 8: Patients having wound problems during follow up.

Procedure	Total number of patients	Patients having vasectomy failure	% of patients having vasectomy failure
No-scalpel vasectomy	25	0	0
Standard vasectomy	25	1	4

Table 8, suggested in NSV out of 25 patients, no patient (0%) and in standard vasectomy, 1 patient (4%) having vasectomy failure.

The occurrence of vasectomy failure is nil in NSV as compared to standard vasectomy (OR 3.122, 95% CI 0.1213 to 80.39).

DISCUSSION

The NSV technique required less surgery time. (10 to 20 minutes) as compared to the standard vasectomy group (20 to 30 minutes).

The NSV group was less likely to report perioperative pain than the standard vasectomy group. The NSV group had less pain during follow up than the standard vasectomy group. Post-operative analgesic requirement was less (<4 days) in NSV as compared to SV (6-8 days). Post-operative antibiotic requirement was less (5 days) in NSV as compared to SV (>4 days).

The NSV group had less wound infection (hematoma) during follow up than the standard vasectomy group. In NSV group 8% patients and standard vasectomy 32% patients having wound problem during follow-up. In standard vasectomy only one patient having vasectomy failure no vasectomy failure in NSV.

In study done by Cook LA and team, two randomized controlled trials evaluated the no-scalpel technique and differed in their findings. The larger trial demonstrated less perioperative bleeding (Odds ratio (OR) 0.49; 95% Confidence Interval (CI) 0.27 to 0.89) and pain during surgery (OR 0.75; 95% CI 0.61 to 0.93), scrotal pain (OR 0.63; 95% CI 0.50 to 0.80), and incisional infection (OR 0.21; 95% CI 0.06 to 0.78) during follow up than the standard incisional group.

Both studies found less hematoma with the no-scalpel technique (OR 0.23; 95% CI 0.15 to 0.36). Operations using the no-scalpel approach were faster and had a quicker resumption of sexual activity.⁶

In study done by Sandhu AS compared no-scalpel vasectomy with standard incisional vasectomy in 176 patients over a 33-month period. The haemorrhage rate was 1.08 per cent for no-scalpel vasectomy compared with 11.9 per cent for standard vasectomy ($p<0.005$).⁷

The infection rate was 3.26 per cent for no-scalpel vasectomy as against 14.28 per cent for standard vasectomy ($p<0.01$). There was a 37.5 per cent reduction in operating time and a substantial reduction in pain during and after the procedure when no-scalpel vasectomy was performed and also there was no failure of vasectomy.⁷

Men who received no scalpel vasectomy method in Skoal trial had less bleeding, hematoma, infection, pain in

follow up and shorter operation time and quicker resumption of sexual activity. This finding are consistent with results from large, non randomized studies that have documented fewer hematomas and infection, as well as shorter operating time with the no- scalpel then with the scalpel approach. The results are also consistent with the Labrecque et al, review of this topic.⁸⁻¹¹

CONCLUSION

Compared to the standard vasectomy technique, the no-scalpel vasectomy approach to the vas resulted in less bleeding, less pain during or after the procedure, and infection, as well as a shorter operative time, no longer day's analgesic and antibiotic requirement and a more rapid resumption of sexual activity.

The sample sizes might have been small to- detect actual difference. There is no doubt that NSV is superior then standard vasectomy, only thing is that there is initial short learning in NSV.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Patel HR, Solanki H, Dharaviya P. A comparative study of scalpel versus no scalpel vasectomy. *Int Surg J* 2018;5:1708-12.