



MICROSURGICAL VASOEPIDIDYMAL ANASTOMOSIS IN OBSTRUCTIVE AZOOSPERMIA IN FILARIAL ENDEMIC ZONE OF EASTERN INDIA.

Urology

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ABSTRACT

Purpose: To analyze the operative outcome of microsurgical vasoepididymal anastomosis (VEA) in cases of obstructive azoospermia in Indian population.

Method And Material: This prospective study was conducted at SCB medical Collage and Hospital Cuttack, from the period Jan 2016 to Oct 2019. Total 20 cases of obstructive azoospermia probably due to ductal obstruction were selected for the procedure of were enrolled for this study.

Results: Out of 20 patients 17 patients were within 25-40 years of age. Mean duration of infertility was 5.6 years. In our study most common etiological factor was chronic epididymo-orchitis due to filarial infection. Right side was selected for operation in 65% patients. Mean operation time was 123.5 minutes in our study.

Conclusion: The current technique of microsurgical VEA provides a simplified and viable option for males with obstructive azoospermia rather than going directly for expensive assisted reproductive techniques with associated complications. The microsurgical vasoepididymal anastomosis is a reasonable treatment option for properly selected obstructive azoospermia patients with good outcome and negligible morbidity.

KEYWORDS

INTRODUCTION:

Infertility is defined as the inability to conceive after 1 year of regular unprotected sexual intercourse. About 15% of couples are affected. Male factors account for about 50% of couples with infertility. About 10 to 15% of infertile men suffer from azoospermia (complete absence of sperms in the ejaculate), with approximately 40% have complete obstruction in the ductal system i.e. obstructive azoospermia.

Worldwide vasectomy is the commonest cause of sterility secondary to ductal obstruction and surgical and non-surgical trauma to vas and epididymis also plays role. Infective causes like filariasis, non-specific epididymo-orchitis, and tuberculosis are also important. In India filariasis is still the dominating cause. The hallmark of men with obstructive azoospermia is a normal testicular size and FSH, showing normal spermatogenesis.

Various conventional and microsurgical techniques of vasovasostomy and vasoepididymostomy have been described. However, there lie considerable controversies regarding the most effective technique. With modern microsurgical techniques an accurate anastomosis is achievable in large number of cases. There are gradual modifications of microsurgical vasoepididymostomy from end-to-end to intussusceptions or invagination technique.

In this study we evaluate the results of microsurgical vasoepididymostomy (2-suture longitudinal intussusceptions) in cases of obstructive azoospermia.

MATERIAL AND METHODS:

This Prospective study was conducted in SCB medical Collage and Hospital, Cuttack from the period Jan 2016 to Oct 2019. The male patients attending Andrology OPD, Department of Urology during this period were evaluated as per the proforma and cases of obstructive azoospermia probably due to ductal obstruction were selected for the procedure.

Inclusion Criteria:

Only patients with azoospermia, normal testis and vas, normal FSH and normal spermatogenesis in the testicular biopsy were included in this study.

Exclusion Criteria:

Patients with obstructive azoospermia with congenital bilateral

absence of vas, non obstructive azoospermia, abnormal testicular examination and vas were excluded.

All patients were evaluated with detailed history, physical examination and investigated as per the Proforma and the important infertility related factors like semen analysis, hormonal profile and Trans rectal ultrasonography were considered.

All azoospermic patients with normal size and consistency of testis, normal vas deference and normal hormonal evaluation were subjected to testicular biopsy. Single seminiferous tubule biopsy (SST) method was done along with FNAC and open biopsy in few patients.

The patients with histopathology report showing normal spermatogenesis were considered as having obstructive azoospermia and were included for this study and underwent 2 suture microsurgical longitudinal vasoepididymostomy after proper anaesthetic check up and consent for surgery.

The patients were investigated with routine hematological tests, X-Ray Chest, ECG and cardiovascular evaluation and the fitness for surgery was ensured and planned for surgery.

All azoospermic patients with normal size and consistency of testis, normal vas deference and normal hormonal evaluation were subjected to testicular biopsy. Single seminiferous tubule biopsy (SST) method was done along with FNAC and open biopsy in few patients.

PROCEDURE (Two suture longitudinal intussusception technique)

Position and anaesthesia- Surgery was done in supine position under spinal or epidural anaesthesia. The side with better testis and or distended, supple epididymis was chosen cases of vasoepididymostomy.

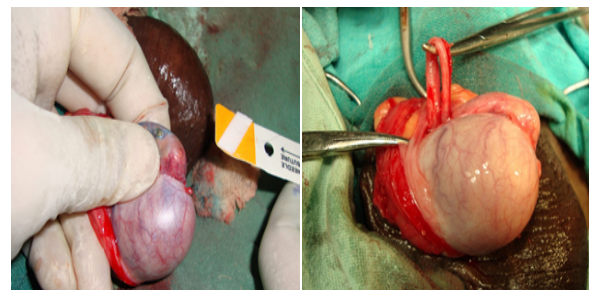
Incision- About 4-5 cm inguino-scrotal incision was given and cord was delivered with proper hemostasis.

Delivery of vas and saline vasogram- Vas deference was carefully separated from the posterior aspect of cord. Both ends of vas were traced with blunt dissection to free the proximal vas. The epididymal end was examined to identify the straight and convoluted vas and near

the junction in straight portion vas was incised, distal end was cannulated with 26 G canula under microscope and saline vasogram was done by pushing 10-15 ml normal saline. The patency was maintained if saline flowed easily without backflow. The vasal vessel was tied at this end.



Tunneling of vas, epididymis exposure and tubule dissection- Tunica vaginalis of testis was incised after delivery of testis to the wound. The epididymis is examined under operating microscope to identify the possible site. Tunnel was made in tunica vaginalis, the vas was taken to epididymal end and fixed to tunnel with vasal wall. The selected site of epididymis starting from caudal end, sheath was incised to get few protruding tubules. The tubules which were distended and whitish were chosen for anastomosis.

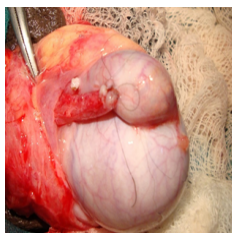


The epididymal fluid was collected in sterile slide after tubule punctured with needle and one drop of RL or saline mixed and cover slip placed.

Anastomosis- End to Side Intussusception- After confirmation of presence of sperm the vasal end is brought near the epididymal tubule and 2suture technique done using 10-0 polyamide (3313 Ethilon) for tubule intussusception. Outer sheath was close watertight interrupted suturing with 8-0 polypropylene.



The both ends of sutures were brought out through vasal lumen included mucosa and inner muscle layer inside out. The sutures were tied taking care not to cut through or damage them. Then second layer sero-muscular sutures placed with epididymal sheath all around to make a water tight anastomosis.



Follow up- All the patients were followed with semen analysis at 1month post operatively and repeated at 3, 6, and 9 months till positive.

If azoospermia persisted at 1 year then this was considered failure of the surgery.

RESULTS AND DISCUSSIONS:

In the present study 20cases suspected to have obstructive azoospermia on clinical ground were studied. Patients mainly belonged to the 3rd decade of life. The average age of the patients was 32.9 years. The youngest was 25years and oldest was 43years. Age of presentation is similar to other studies in India and outside. The duration of infertility in this study is 2-15 years (mean being 5.6years).

Summary Of Results

	Patients
Age(years)	
25-40	17
40-50	03
Duration of infertility(years)	
1-5	18
6-15	02
Etiological factors	
Chronic Epididymo-orchitis (Filarial)	15
Previous surgery	03
No define causes	02
Technique of operation	
Intussusception	17
Conventional	03
Mean operative time (minutes)	123.5
Operative finding	
Fibrotic and dry whole epididymis	7
Tail fibrotic	6
Normal epididymis	3
Gross surrounding adhesion	4(2 hydrocele)
Post operative sperm analysis	
Positive	06
Negative	14

Infertility has troubled human beings for centuries and its incidence will probably continues to rise. As per western literature, infertility is likely to show an increasing trend for at least next 20 years Le et al¹. Male factors contribute to about 50% of couples with infertility in the general population and less than 1% of men are azoospermic. Among infertile men, the incidence of azoospermia is about 10 to 15%, of which 40% is due to obstructive azoospermia Karpman E et al².

In the present study 20cases suspected to have obstructive azoospermia on clinical ground were studied. Patients mainly belonged to the 3rd decade of life. The average age of the patients was 32.9 years. The youngest was 25years and oldest was 43years. Age of presentation is similar to other studies in India and outside. The duration of infertility in this study is 2-15 years (mean being 5.6years).

Majority of the etiological factors responsible for inducing an infertile status in a male do not differ in India as compared to the west. Along with other factors, the infective causes like filariasis and tuberculosis are associated with male infertility in our region. Now a day in our region the prevalence of filariasis and tuberculosis is high along with the chlymidial epididymo-orchitis which may contribute to obstructive azoospermia. In our study filarial cause was found to be a dominant factor. Various surgical and non-surgical traumas can also cause obstructive azoospermia Hanley et al³. Vasectomy is the leading cause of infertility secondary to ductal obstruction Sherin et al⁴. Infertility due to filariasis may result from a mechanical ductal obstruction to the passage of sperm Beach et al⁵.

Out of 20 testicular biopsy 16 patients revels chronic inflammation and inconclusive in 4 patients. 15 post-inflammatory cases in this study were selected on the basis of their normal sized testis showing normal spermatogenesis associated with azoospermia. Out of these, 5 patients had history of recurrent epididymo-orchitis.

In the earlier years vasoepididymal anastomosis were performed on both sides but Kar and Phadke et al⁶ purposely performed the procedure only on one side. In our study we have done single side in 17 cases and bilateral in 3 cases.

In this study 4 out of 17 i.e.2.35% (15 +2 post operative) post

inflammatory cases were patency positive. But still the results are not encouraging. The high prevalence of filariasis in our region is a major factor. In 3 cases the epididymis was normally distended and 2 out of 3 had patency positive (66.6%).

In this study positive sperm count after surgery was seen in 6 out of 20 cases (30%). There were 6 positive results out of 17 cases of microsurgical 2 sutures longitudinal intussusception technique (35.3%). In majority of patients the cause was chronic epididymoorchitis probably due to filariasis or previous surgery and in almost all of them the epididymis was fibrotic fully or partially that causes difficulty in the surgical procedure.

The follow up was done with semen analysis at 1,3,6 and 9 months of operation. The patients were followed up with scheduled protocol for an average of 12.4 months. The first case was followed up for 18 and last for 4 months. Overall 6(30%) patients reported patency with positive sperms in post operative semen analysis. 2 of these patients were positive at 1 and 3 months each and one case each at 6 and 9 months. The average sperm count was 16.16 million/ml (4-40 millions/ml), forward motility was 10.5% (5-15%) and morphology was 6.1% (3-10%). Due to short follow up period the pregnancy rates were not considered for outcome analysis.

In this study of 20 cases with obstructive azoospermia, the patency rate was less as compared to the published western series and Indian data. However, there are a significantly higher number of post inflammatory cases, probably due to filariasis which is a high prevalence disease in our region of India. This may account for inferior patency rates. Therefore proper patient selection can substantially improve the success rates. Other parameters affecting the surgical outcome, as observed in this study are comparable to other series. The microsurgical vasoepididymal anastomosis is a reasonable treatment option for properly selected obstructive azoospermia patients with good outcome and negligible morbidity.

CONCLUSION:

Microsurgical vasoepididymal anastomosis is a technically challenging operation but the results are good in carefully selected patients with minimal complications. The current technique of microsurgical VEA provides a simplified and viable option for males with obstructive azoospermia rather than going directly for expensive assisted reproductive techniques with associated complications.

While the present study is handicapped by a short follow up and limited number of patients, the observations and results provide important information regarding parameters affecting the outcome of microsurgical vasoepididymal anastomosis. Since few studies are available on Indian patients regarding the results of microsurgical VEA, therefore the current study is aimed at fulfilling that lacuna. However a larger randomized study with longer follow up is desirable to validate the outcomes of this study.

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