The need for further reproductive medical advice after vasectomy reversal

Abstract  The aim of this study was to determine the motivation of patients (n = 73) who had undergone microsurgical refertilization for further treatment (assisted reproduction) and the demand for medical counseling. By an interview, 57/73 patients could be evaluated for motivation, further demand for medical counseling, and the postoperative outcome (patency rate). In all, 60% of the patients who failed the treatment and 33% with a patent anastomosis mentioned interest for further counseling, especially for assisted reproduction. The satisfaction rate after the refertilization was nearly identical in the two groups (67%/64%). Following microscopical vasovasostomies the patency was 92%, which was significantly different from that observed after macroscopical refertilization (55%). In conclusion, the standard for refertilization is the microsurgical technique. Furthermore, there is a strong need for counseling that involves urological-andrological advice given by the same work group, including advisement on the techniques of assisted reproduction that might be necessary following the operative treatment.

The vasovasostomy is mostly performed as a reversal of a prior contraceptive vasectomy. Until the middle of the 1970s, macroscopic surgery was performed, then the operative technique changed to microsurgical techniques under microscopic magnification [13]. The first vasovasostomy was performed in 1919 by O’Conor [10], who used a horsehair for inner stenting of the vas deferens in the area of the anastomosis. The inlaying silkworm or the horsehair was brought to the surface and removed through the wound after 6–10 days. Microsurgical procedures are commonly divided into a one-layer (Sharlip) or two-layer technique (Silber), with several modifications [8, 12–14].

Engelmann et al. [5] have shown in a questionnaire sent to urologists in the three German-speaking European countries that about 25,000 vasectomies are performed in these countries and that although 6% of the sterilized men eventually demand a vasectomy reversal, the actual rate of refertilization operation is only 2%. Derrick et al. [3] showed similar results for the United States, where the request rate ranged between 2% and 6% in 500,000 men who had undergone a prior sterilization operation.

The request for vasovasostomy procedures is growing due to the increasing prevalence of divorce and remarriage. The motivation for vasectomy reversal was also shown in 1991 by the results reported by the Vasovasostomy Study Group; 75% of the patients had divorced and remarried, 10% had a new wish for paternity in the same partnership and 2.6% requested refertilization due to the death of a child. Other reasons were scrotal pain or psychological problems (i.e., erectile dysfunction) [1].

The postoperative need for further medical counseling or techniques of assisted reproduction [in vitro fertilization (IVF) or ICSI (intracytoplasmatic sperm injection)] after microsurgical refertilization has not yet been examined.

Patients and methods

We evaluated the postoperative results and the psychological situation of 73 patients who had undergone a refertilization operation between 1990 and 1994 at the Urological Department at the University of Essen. In all microsurgical treated patients we used a two-layer technique as described extensively elsewhere [2, 11, 14]. The postoperative results included the patency of the anastomosis and perioperative complications. Furthermore, the psychological situation of the patients was evaluated by a questionnaire whose items included the satisfaction with the operative treatment, the motivation for another operation to achieve paternity, and the demand

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for medical advice – especially under the aspect of assisted reproduction techniques.

Statistical analysis was performed using Fisher’s exact test ($\alpha = 0.05$). The first criterion was evaluation of the postoperative results of the vasovasostomies and the tubulovasostomies in the special setting of a university hospital (different surgeons, different techniques, and, especially, different experience). The second criterion was the motivation of the patients for further investigation to provide information about the possibilities of assisted reproduction using sperm obtained from the ejaculate fraction or of the performance of another operation to collect sperm from the epididymis (MESA, microsurgical epididymal sperm aspiration) or the testis (TESE, testicular sperm extraction) in case of unsuccessful refertilization.

**Results**

Of 73 patients who underwent a vasectomy reversal, 57 could be evaluated completely via a postoperative sperm count at 2 years after the operation, a complete history, and counseling, if demanded. The median age at the time of operation was 36 years.

Figure 1 shows the motivation of our patients for refertilization. In all, 14 patients were treated for primary infertility due to obstructive azoospermia. Of the 59 vasectomy reversals performed, 43 were requested owing to remarriage, 2 were desired because of the death of children, and 4 were requested by patients in the same partnership without mentioned reasons. A prior surgical intervention that resulted in injury to the ductus led to reconstruction in three cases. Four patients had undergone a vasectomy before paternity and then changed their mind, and in one case each a refertilization was performed due to psychological problems, persisting pain, and partial obstruction after orchiopexy.

A vasovasostomy was performed in 48/57 completely evaluated patients, and in 9 cases we performed a tubulovasostomy. After macroscopic surgery we could achieve patency of the reanastomosis in 5/9 cases (55%); following the microsurgical technique the patency rate was 36/39 (92%; Fig. 2). Fisher’s exact test shows a significant difference ($P = 0.02$) for the comparison of the operative techniques.

Table 1 shows the complications encountered after vasectomy reversal. The patients returned to work at between 1 day and 14 days (median 7 days) postsurgery; in only one patient did the complications affect the ability to work.

The answer to the question as to whether the patients would consent to the operation again is shown in Fig. 3. Overall, 12% would not do it again, 67% would do it again, and 21% gave no answer. It should also be mentioned that six patients who had successfully undergone a vasovasostomy used IVF or ICSI to achieve paternity and had mentioned this possibility in association with ejaculated spermatozoa as a positive motivation for reanastomosis.

Table 2 shows the differences in the motivation for further counseling of the successfully and unsuccessful treated patients. In all, 14/39 successfully treated patients had an interest in further counseling as compared with 9/15 patients who had failed reanastomosis. The statistical analysis showed no significant difference ($P = 0.1237$), but it should be mentioned that 60% of the failed cases and 33% of the patients with successful vasovasostomies demanded counseling, and this must be considered a trend.

**Discussion**

Obstructive azoospermia is a reason for male infertility that might be treated with reconstructive operative techniques. The therapeutic opportunities vary widely, ranging from reconstruction of the ductus deferens, as discussed in this paper, to modern sperm-retrieval techniques such as MESA (microsurgical epididymal sperm aspiration), TESE (testicular sperm extraction), or PESA (percutaneous epididymal sperm aspiration) in conjunction with assisted reproduction [15–17].

The most important indication for reconstructive surgery is the renewed wish for paternity after prior vasectomy as shown in our series at 80% in comparison with the 45% reported by Schwarzer et al. [11]. The small number in the latter series reflects the general