VASECTOMY REVERSAL

Whilst vasectomy is regarded as permanent contraception, < 5% of men later desire further fertility, and vasectomy reversal (vasovasostomy) may be done to restore fertility. When technically possible, this is the most logical mechanism to restore fertility after previous vasectomy. It is a safe, relatively straightforward surgical procedure, performed on a day-stay basis. However, the procedure takes around 2 hours performed using an operating microscope under general anaesthetic and it is therefore relatively expensive. Surgery is performed through a midline scrotal incision which is well tolerated and generally heals without complication. Most patients return to work and normal activities within a 2 weeks.

There are a few considerations before proceeding with vasectomy reversal:

- Some 20 percent of normal couples experience some degree of infertility. Therefore factors contributing to poor fertility other than the previous vasectomy should be considered, investigated for and appropriately treated. These may be male factors, female factors or both.
- Whilst return of sperm to the semen is a technical success, the ultimate objective of vasectomy reversal is pregnancy with a well, live baby. Vasectomy reversal is technically successful in approximately 80% of patients and roughly half of these couples achieve spontaneous pregnancy and delivery.

Male Factors:

- Normal, ready fertility prior to vasectomy favours a good outcome from vasectomy reversal.
- An interval between vasectomy and vasectomy reversal of 5 years or less favours subsequent spontaneous pregnancy whereas intervals of greater that 15 years are less likely to achieve pregnancy.
- Recurrent epididymitis and scarring will compromise the likely success of vasectomy reversal. This affects both the technical success of vasectomy reversal and the likelihood of anti-sperm antibodies which interfere with fertilization.
- Male age appears to have a minor effect on the sperm motility and morphology.

Female Factors:

- Age impacts significantly on a woman's fertility. Spontaneous pregnancy declines progressively after 35 years and is only 15% in women older than 40 years.
- Previously-proven normal, ready fertility is a favourable factor.
- Coexisting gynaecological problems and previous pelvic infections compromise spontaneous fertility in women.

Assisted fertility treatment (IVF) may be an alternative to vasectomy reversal to achieve pregnancy. Sperm can be extracted from the testicle, eggs removed laparoscopically from the ovary, the sperm injected into the eggs and the embryos transferred back into the woman for normal pregnancy (ICSI). The success rate for this is 10% per cycle and ICSI costs approximately NZ$10,000 per cycle. The likelihood of twins with ICSI is 20 fold that of natural conception, with associated increased problems for both mother and infants, and greater health care costs.
IVF bypasses normal sperm and egg selection processes. Embryos created in this manner contain a significantly higher percentage of genetic abnormalities than is normally expected, and this genetic damage probably accounts for the higher rates of miscarriage that are seen in IVF. It may also allow genetic abnormalities to be carried through into the foetus and child. Some 4% of children from ICSI have major congenital abnormalities, higher than with natural conceptions.

Vasectomy reversal is therefore recommended in couples where the prior vasectomy is likely to be the only factor affecting fertility. Cost-effectiveness analyses from the United States comparing vasectomy reversal with ICSI significantly favour vasectomy reversal (and even repeat vasectomy reversal) per live birth, in couples where the interval between vasectomy and reversal is 15 years or less.

Pure **assisted fertility** may be considered in preference to vasectomy reversal where there are a number of unfavourable factors affecting fertility and where the couple desire only one pregnancy, and where the interval since vasectomy is long.

It is possible to use a **combination** of treatments: vasectomy reversal to restore sperm in the semen and simpler lower tech assisted fertility, such as ovarian stimulation. In this situation, vasectomy reversal achieves large numbers of good quality sperm that can be readily provided by ejaculation rather than surgical extraction from the testis, which in turn allows for safer, cheaper, assisted fertility techniques using simpler technology to achieve pregnancy and a healthy baby.