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## AZOOSPERMIA

Azoospermia, or the complete absence of any spermatozoa in semen, is one of the few pictures seen in the analysis of semen in which we can give a confident prognosis. If a man has azoospermia on repeated semen analyses we can be sure in saying that he cannot, unless there is some change, father a child by natural methods of reproduction.

### CAUSES

#### **Primary Failure to Produce Spermatozoa**

This is the cause in around half of the cases of azoospermia. It is congenital (present at birth), often inherited, and there is nothing that can be done to reverse the condition.

#### **Secondary Failure to Produce Spermatozoa**

Failure of the testes to produce spermatozoa after initially producing normal spermatozoa can have a range of causes. These include hormonal abnormalities, other severe disease processes, infection (eg. mumps virus) or as a result of drugs (eg. those used to treat cancer), radiation or toxic chemicals.

#### **Obstruction**

The testes are producing spermatozoa but an obstruction somewhere in the genital tract prevents their being ejaculated. This can be present at birth (congenital absence of the vas deferens) or be acquired as a result of infection or surgery (eg. vasectomy).

### TREATMENTS

There is no treatment for primary spermatogenic failure. Secondary spermatogenic failure sometimes responds to hormonal treatments. Secondary acquired azoospermia, particularly that resulting from cytotoxic drug treatments, sometimes recovers a good number of years later however there is nothing that we can do to hasten the recovery or predict those in whom recovery will occur. Obstructions due to infection or surgery can sometimes be corrected by urological micro-surgery.

### FERTILITY OPTIONS

Until the evolution of the various assisted reproduction procedures collectively known as IVF, patients with untreatable azoospermia had only the options of remaining childless, adoption, or the use of donated semen. These options of course remain and, for those to whom they are acceptable, they are by far the simplest.

IVF, and more recently the introduction of assisted fertilisation by microinjection using the ICSI procedure, has given hope to more couples suffering azoospermia who would prefer their own genetic children. These procedures do not require many spermatozoa so as long as there is at least minimal recovery from the azoospermia, then there is a chance of achieving fertilisation of the wife's oocytes in vitro. In cases where obstruction cannot be successfully reversed we are able to obtain spermatozoa from the epididymis or the testis and use them for IVF.

### THE FUTURE

For patients with very poor sperm the procedure of assisted reproduction by microinjection using direct intracytoplasmic injection of a single sperm (ICSI) into the oocyte is the answer. It is necessary to immobilise sperm used for this procedure. The absence of motility in very poor sperm is therefore not a concern. It is also possible to use sperm or sperm precursor cells obtained from the testis itself for use in the ICSI procedure. While it will be some years before the efficacy and safety of this approach is verified, there is ample evidence that the modern assisted reproduction procedures have the potential to help around half of the cases of azoospermia in the quest to father children. Although some may require many attempts, the pace of developments in the assisted reproductive technologies over the past decade can only provide encouragement for those with this problem.