

# Male Subfertility

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**I**nfertility is a condition that involves a man and a woman attempting unsuccessfully to conceive a child. A working definition of the problem is necessary to provide criteria for initiating an evaluation. As a practical guide, infertility is present when a woman fails to conceive after one year of regular, sufficiently frequent, unprotected intercourse. Since the male or female or both partners may have specific factors causing the infertility, both should be examined initially. Male subfertility accounts for 45% of all infertile marriages and contributes to a further 10% when both partners are subfertile.

Many more investigations have been conducted in human gynaecology than in andrology. The reproductive ability of men is characterized by several interacting anatomical and physiological phenomena. The presence of normal responsive testes and accessory glands are essential for normal male reproductive function, as is the presence of normal anatomy of excurrent ducts permitting free passage of the ejaculate. Normal testicular function is dependant of normal endocrine relationships outlined in Figure 1:1. Reproductive failure in men can result from a large variety of causes including anatomical, mechanical, vascular, neural, physiological, endocrine, immunological, genetic, psychogenic, iatrogenic or pathological factors. A working classification of causes of male subfertility is outlined in Table 1:1. The diagnosis of male subfertility relies on an accurate semen analysis supplemented by other investigations such as an endocrine evaluation. It is also important to take a complete history and perform a physical examination in sufficient detail to detect unsuspected underlying disease.

## History

The physician should attempt to elicit by direct and specific questions symptoms related to various

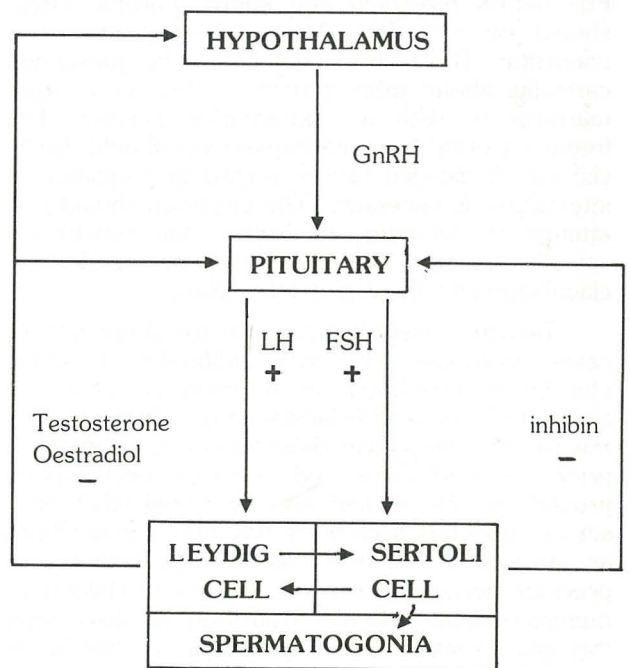


Fig. 1:1 - The hypothalamic-pituitary-testicular axis showing stimulatory (+) and negative (-) feedback mechanisms. Testosterone and oestradiol are inhibitory to LH and FSH secretion, while inhibin is inhibitory to FSH secretion.

Table: 1:1 A Working Classification of Male Subfertility

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<p><b>A. Testicular Abnormalities</b></p> <ol style="list-style-type: none"> <li>1. Primary hypogonadism: developmental, genetic, traumatic, inflammatory, radiation, thermal disorders, varicocele, cryptorchidism, retarded descent.</li> <li>2. Secondary hypogonadism: hormonal disorders of pituitary-hypothalamic axis, adrenal, increased oestrogens, thyroid disorders.</li> </ol>
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<p><b>B. Accessory Organ Abnormalities (Prostate and Seminal Vesicles)</b></p> <ol style="list-style-type: none"> <li>1. Congenital</li> <li>2. Traumatic</li> <li>3. Infectious</li> <li>4. Immunological</li> </ol>
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<p><b>C. Excurrent Duct Abnormalities</b></p> <ol style="list-style-type: none"> <li>1. Vas deferens and epididymis: surgery or trauma, infective, congenital, cystic fibrosis.</li> <li>2. Penile abnormalities             <ol style="list-style-type: none"> <li>(a) anatomical - developmental or traumatic</li> <li>(b) functional - disorders of erection or ejaculation</li> </ol> </li> </ol>
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conditions potentially causing the subfertility. This requires that a full review of childhood illness, organ systems, past medical history, occupational and dietary history be obtained. A family history of subfertility or hypogonadism may be particularly helpful. Full details regarding any known chronic illness should be recorded. A careful drug history is important. The male patient should be questioned carefully about prior fertility, either in another marriage or with an extramarital partner. The frequency of extra-marital experiences should also be elicited. A detailed history regarding frequency of intercourse is necessary. The physician should also attempt to determine by history that penetration actually occurs during intercourse and that ejaculation into the vagina takes place.

Testicular disorders account for about 60% of cases presenting with male subfertility. Cryptorchidism in childhood, even when corrected, is associated with a high incidence of subfertility. For this reason, the patient should be questioned about prior cryptorchidism and previous orchidopexy procedures. He should also be asked whether a scrotal mass has been previously noted. In addition, an attempt should be made to elicit a history of previous hernia, hydrocoele, surgery in childhood, mumps orchitis, testicular irradiation, cytotoxic drug therapy, excessive heat application to testes, or scrotal trauma. Since mild flu-like illnesses may result in temporary oligospermia, recent mild illness, testicular pain, or symptoms of urethritis should be asked about. Since testicular failure may result in androgen deficiency, pertinent questions should be asked about libido, frequency of shaving, muscle strength, endurance, potency or development of male pattern baldness. The age that the patient first noted

pubic hair, penile enlargement, growth spurt and onset of shaving should be noted.

Anatomic obstruction to sperm egress usually in the epididymis and vas deferens account for approximately 8% of cases. A history suggesting epididymitis and venereal disease (particularly gonorrhoea) should be sought. Symptoms of frequent pulmonary infections may suggest a mild heterozygous form of cystic fibrosis which is associated with bilateral absence of the vas deferens. Prostatic disease may also cause mechanical obstruction and symptoms of prostatitis, penile discharge, pelvic pain on urination or defaecation, or prior prostatic or bladder neck surgery should be sought.

Approximately 9% of infertile men will be found to have pituitary or hypothalamic lesions as a cause. Two types of symptom complexes may be present in these patients. They may complain of symptoms referable to growing lesions (headaches or disturbances of peripheral vision) or alternatively they may have complaints suggesting endocrine abnormalities. Hyper- or hypofunction of the thyroid and adrenal glands have been implicated with subfertility in the male. Men with diabetes mellitus or other disease associated with autonomic neuropathy, as well as patients receiving antihypertensive medications, may experience retrograde ejaculation into the bladder. These patients may not appreciate that emission from the penis during ejaculation is absent. The only symptom may be a cloudy urine secondary to semenuria in the first voided urine after intercourse.

Psychogenic factors as a primary cause for subfertility may account for up to 5% of cases referred for a subfertility evaluation. Male impotence and

disorders of ejaculation are not uncommon. These disorders are frequently psychogenic in origin, but organic or iatrogenic causes must be ruled out. A number of clues suggesting psychogenic disorders may include:

- (1) sudden rather than gradual onset
- (2) retention of morning erections
- (3) potency in extramarital relationships
- (4) a prior history of premature ejaculation and
- (5) a history of a female dominant partner or prior homosexual tendencies

Stress factors at home or work may also contribute to the problem.

### Physical Examination

A complete physical examination should be carried out to attempt to uncover unsuspected underlying systemic disease. General examination should aim at identifying psychogenic and endocrine causes for the subfertility. Careful measurement of height, arm span and pubis to floor distance may provide evidence of mild eunuchoidism. This finding is present when the arm span is two inches or more greater than the height, or the floor to pubis distance is two inches or more greater than the pubis to head distance. The overall androgenic effects in the patient are evaluated by observing the axillary, pubic and facial hair, penile size, muscle mass, and pitch of voice. A careful assessment of breast tissue should be made to exclude gynaecomastia.

The genital organs should then be carefully

examined. The length and width of the testes may be easily determined with a millimeter ruler. The lower limit of testicular length and width in normal adult men is 3.6 and 2.1 cm respectively (length  $4.6 \pm 1.1$  cm; width  $2.6 \pm 0.5$  cm). Measurement of volume using a series of ellipsoids for comparison has been suggested as a more precise assessment of testicular size. An orchidometer has 12 models of definite shape and volume, eg. 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 20 and 25 ml respectively. These sizes can easily be distinguished in the patient by palpation. Testicular consistency is also assessed. Hypogonadism secondary to pituitary disease is characterised by a softening of the testes as well as a decrease in size. Testicular masses should be also sought for. The presence of a varicocele in the scrotum should also be looked for. Dilatation of the veins in the upper portion of the scrotum are usually easily felt or are evident upon inspection when the patient is standing and performing a Valsalva manoeuvre. Signs of balanitis and balanoposthitis must be looked for and their aetiology identified. The epididymis and vas deferens should be palpated between the thumb and index finger. Nodularity, tenderness or masses may be indicative of previous epididymitis or granulomatous disease. The vas deferens may be congenitally absent. Inguinal and femoral hernias or scars of previous herniorrhaphies should be noted. Rectal examination allows assessment of the prostate and seminal vesicles. This examination should be directed towards determining overall gland size, consistency of the two lobes, irregularities of the surface or tenderness.