Trans-rectal Ultrasonic Guided Aspiration and Opacification of Seminal Vesicle in Management of Patients with Ejaculatory Duct Obstruction

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ABSTRACT

Ejaculatory duct obstruction is considered a rare cause of infertility. It is present 1% to 5% of infertile men and it constitutes 5% of azoospermic men.

Ejaculatory duct obstruction (EDO) can be either congenital due to ejaculatory duct atresia, ejaculatory ducts stenosis and mullerian, wolffian or utricular cysts or acquired such as iatrogenic or accidental trauma, urethritis, prostatitis, prostatic calcification, ejaculatory ducts calculi and the obstruction may be partial or complete, unilateral or bilateral.

In partial EDO the clinical presentation is highly variable and can include a wide spectrum of the semen abnormalities ranging from low to normal semen volume, azoospermia to normozoospermia, and the motility is usually diminished.

Key Words:

Embryology of male genital duct system, Anatomy of male genital duct system, Physiology of male ejaculate and ejaculation, Pharmacological mechanisms of ejaculation

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LIST OF ABBREVIATIONS

ED	Ejaculatory duct
EDO	Ejaculatory duct obstruction
FSH	Follicular stimulating hormone
LH	Lutienzing hormone
MESA	Microscopic epididymal sperm aspiration
PRL	Prolactin
STDs	Sexual transmitted disease
SVs	Seminal Vesicles
TRUS	Trans-rectal ultrasonography
TESE	Testicular sperm extraction
TURED	Transurethral resection of the ejaculatory ducts
TEST	Testosterone
TB	Tuberculosis
TURED	Transurethral resection of ejaculatory ducts
TUIED	Transurethral incision of ejaculatory ducts
TUR-veru	Transurethral resection of verumontanum
Nd/ YAG	Neodymium:Yttrium-Aluminum-Garnet Laser

Introduction

Introduction

Ejaculatory duct obstruction (EDO) is a cause of infertility in 1% to 5% of infertile men ***(Pryor JP et al., 1991).***

It is suspected in patients with normal, palpable vasa deferentia and semen analyses that reveal low ejaculate volumes combined with low or normal sperm concentration and low or absent motility ***(Turek PJ, 1996)***. Ejaculatory duct obstruction (EDO) also presents as haematospermia and painful Ejaculation.

The ability to make such diagnosis of transrectal ultrasonography has resulted in apparent increase in the incidence of the disease ***(Belker and Stienbock, 1990).***

Even in the age of the assisted reproductive procedures such as TESE and MESA, it is important to diagnose obstructive azoospermia. The importance of the diagnosing this entity is the potential reversibility.

Ejaculatory duct obstruction (EDO) can be either congenital or acquired. Congenital causes include: ejaculatory duct atresia, ejaculatory ducts stenosis and mullerian, wolffian or utricular cysts. Acquired causes include: iatrogenic or accidental trauma, urethritis, prostitis, prostatic calcification, ejaculatory ducts calculi and mega vesicles of the seminal vesicles or ampullary part of the vas ***(Popken et al., 1998).***

Ejaculatory ducts obstruction may be partial or complete, unilateral or bilateral. In complete bilateral EDO the ejaculate will be small in volume, azoospermic, and acidic, lacking coagulation and negative for fructose test (***Schlegel, 1997).***

In partial EDO, the clinical presentation is highly variable and can include a wide spectrum of the semen abnormalities ranging from low to normal semen volume, azoospermia to normozoospermia, and the motility is usually diminished ***(Schlegel,1997).***

Suspicion of partial EDO was based on normal physical and hormonal profile combined with low (<2 ml) or normal semen volume, with or without acidic PH, sperm count<20 millions/ml or sperm motility<30% so infertile males with small ejaculate volume, impaired sperm count and/ or motility, normal physical examination and normal hormonal profile should be examined for partial EDO ***(Turek et al., 1996).***

Diagnosis of EDO is built on complete fertility history and physical examination. The size of the testicles and the presence of the vasa and the epididymis are noted. Repeated semen analysis and examination of the centrifuged pellet for the presence of the sperms is initial and important step in diagnosis EDO ***(Werthman, 1999).***

Recently TRUS has been combined with seminal vesiculography to search for seminal tract obstruction, thereby greatly reducing the need for the more invasive open vasography ***(Kuligowska et al., 1992).*** The advent of TRUS has greatly facilitated the accurate diagnosis of EDO ***(Jarow, 1993).***

For affected patients transurethral resection of the obstructed ejaculatory ducts (TURED) durably improves semen quality and decreases urological symptoms ***(Netto NR et al., 1998).***

However TURED is also associated with potential complications, including watery (urine) ejaculate, epididymitis and rarely urinary incontinence ***(Goluboff et al., 1995).*** Such risks emphasize the important role of careful diagnosis and patient selection in this condition.

The optimal method to evaluate ejaculatory duct obstruction is poorly defined. Tran-scrotal vasography is the most invasive technique used to diagnose EDO. Through ante grade or retrograde injection of contrast medium into the vas deferens or seminal vesicle, vasography provides static anatomical and dynamic information about the reproductive tract. In the last decade trans-rectal ultrasonography (TRUS) has been widely used to evaluate EDO ***(Jarow JP, 1996).***

Although it is less invasive than vasography, TRUS provides only anatomical information concerning the static dimensions and positions of reproductive tract organs. Indeed, the presence or the absence of certain anatomical findings does not correlate well with true physical obstruction of the ejaculatory ducts ***(Hellerstein et al.*, *1992).***

For example, TRUS accurately detects SV enlargement but not all patients with dilated SVs have EDO. Thus, although it is minimally invasive, TRUS may not be the best method to detect EDO.

SV sperm aspiration and seminal vesiculography are used to search for seminal tract obstruction, thereby reducing the need for the more invasive open vasography ***(Kuligowska et al., 1992)***.

The finding of sperm in aspirated SV fluid is suggestive of EDO and permits the differentiation of the normal from obstructed ducts ***(Jarow JP, 1996).***

TRUS guided antegrade injection of SVs and ejaculatory ducts may provide static and dynamic evidence of EDO ***(Colpi GM et al., 1997).***

The standard treatment of EDO is endoscopic incision or resection of ED. Congenital ED cysts or utricular cyst may be endoscopically deroofed ***(Silber, 1980).***

In case where large mullerian ducts cysts are compressing and therapy obstructing the ejaculatory ducts, the mullerian ducts cysts can be evacuated non-operatively by transrectal sonographically guided needle aspiration. However the results may be transient, because cyst fluid has been reported to re-accumulate ***(Elder and Mostwin, 1984).***

Alternative technique for treatment of EDO was described by **Schlegel in 1997** through balloon dilatation of ED which is best reserved for patients with either partial EDO**.**

Aim of work

Aim of work

Various diagnostic tests are available to evaluate patients with ejaculatory duct obstruction (EDO). However the most accurate diagnostic technique, defined as the one that best predicts a successful outcome after ejaculatory duct resection is unclear.

The aim of this work is to evaluate the value of trans-rectal ultrasonography (TRUS), seminal vesicle/ cyst aspiration and seminal vesiculography in evaluation and management of complete and partial ejaculatory duct obstruction.

Review of Literature