Ejaculatory Duct Obstruction in the Infertile Male: Experience of 7 Cases at Ramathibodi Hospital

WACHIRA KOCHAKARN, M.D.*,
CHAROEN LEENANUPUNTH, M.D.*,
VERASING MUANGMAN, M.D.*
KRISADA RATANA-OLARN, M.D.*,
VIRA VISESHSINDH, M.D.*,

Abstract

Objective : To study the clinical presentations, management, outcomes as well as pregnancy rate of ejaculatory duct obstruction treated at the Division of Urology, Ramathibodi Hospital.

Material and Method : This retrospective study was done from 1980 to 1999 and information from the medical records of the patients of ejaculatory duct obstruction was obtained. Phone and mail were used for long-term follow-up.

Results : Seven male patients with ejaculatory duct obstruction were identified. The age ranged from 32-45 years old (mean 34.5). All of the patients had azoospermia without other symptoms related to ejaculatory duct obstruction such as painful ejaculation, perineal or testicular pain. Normal testicles and secondary sex characteristics were noted in all. Seventy-one per cent had normal hormonal profiles and twenty-nine per cent had a slight increase of FSH, LH but not more than one fold of normal range. Vasography was used as the diagnosis tool in all of the cases and 71 per cent of seminal vesicles were >1.5 cm in diameter and all the rest were 1 cm in diameter. Transurethral resection of ejaculatory duct (TURED) was done in 6 cases and transurethral incision of ejaculatory duct (TUIED) was done in 1 case. Semen analysis was done in the third month after operation and 4 of 7 (57%) showed improvement of semen analysis but another 3 cases (43%) still had azoospermia. Six months after operation 6 of 7 (86%) showed improvement of semen analysis. Up to one year, 6 of 7 (86%) have normal semen analysis and another one still had azoospermia. In the long-term follow-up, 4 of 7 (57%) were able to impregnate their wives.

Conclusions : Ejaculatory duct obstruction is a treatable cause of male infertility. In an infertile male with oligospermia or azoospermia with low ejaculate volume, normal secondary sex characteristics, testes and normal hormonal profiles, ejaculatory duct obstruction is suggested. Transrectal ultrasonography (TRUS) and/or vasography can be done to confirm the dilatation

of seminal vesicles and obstruction of the ejaculatory duct. Transurethral resection of the ejaculatory duct (TURED) has resulted in marked improvement in semen parameters, and pregnancies have been achieved.

Key word : Infertility, Male, Ejaculatory Duct, Azoospermia

KOCHAKARN W, RATANA-OLARN K,
LEENANUPUNTH C, VISESHSINDH V, MUANGMAN V
J Med Assoc Thai 2001; 84: 1148-1152

* Division of Urology, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Bangkok 10400, Thailand.

Ejaculatory duct obstruction is thought to be a relatively uncommon but treatable cause of male infertility[1]. Historically, the mean of diagnosis were by normal physical examinations, low semen volume, low pH, no fructose content in the semen and confirmation by radiological vasography [2]. Due to the invasiveness of vasography, transrectal ultrasonography and endorectal coil MRI have been introduced and give higher accuracy and sensitivity rate[3]. Since the rarity of this abnormality, little is known about the result of the treatment including long-term follow-up. Therefore, we present our data contributing to the management of ejaculatory duct obstruction, complications of the treatment, follow-up and pregnancy rate.

MATERIAL AND METHOD

We retrospectively studied 7 male patients with ejaculatory duct obstruction treated at the Division of Urology, Ramathibodi Hospital between 1980 and 1999. Information on symptoms, physical examinations, semen analysis, hormonal profiles, technique of operation, post operative complications during admission and early follow-up period were collected from the medical records. Phone and mail were used for the long-term follow-up results.

RESULTS

The age of the patients ranged from 32-45 years old with the mean age of 34.5 years. All of the patients had azoospermia and no symptoms related to the ejaculatory duct such as painful ejaculation, perineal pain or testicular pain were noted. All of them had normal testes, epididymis and vas deferens. Urinary sedimentation showed no spermatozoa. Hormonal profiles (Testosterone, FSH, LH) were done in all and 5 of 7 (71%) had normal hormonal profiles. Two cases (29%) had a slight increase of FSH and LH but not more than one fold of normal range. Vasography was done in all of the cases and demonstrated the obstruction site at the ejaculatory duct with dilatation of the seminal vesicle. Five cases had seminal vesicles >1.5 cm in diameter and another two cases were only 1 cm in diameter. Transurethral resection of ejaculatory duct (TURED) was done in 6 of 7 (85.7%) and transurethral incision of ejaculatory duct (TUIED) was done in one case. Patency was confirmed by direct vision of semen from ejaculatory duct during the procedure. One case (12%) had prolonged urinary retention after the operation and needed another two weeks for catheterization. One case had hematospermia which subsided after two months. Semen analysis was done in the third month after operation and 4 of 7 (57%) showed improvement of semen analysis but another 3 cases (43%) still had azoospermia. Six months after operation 6 of 7 (86%) showed improvement of semen analysis. Up to one year, 6 of 7 (86%) had normal semen analysis and another one still has azoospermia. In the long-term follow-up 4 of 7 (57%) were able to impregnate their wives.

DISCUSSION

In the last few years, impaired fertility has lead approximately 15 per cent of couples to seek medical attention[4]. A male factor fertility problem

Fig. 1. Shows vasogram of ejaculatory duct obstruction, dilated seminal vesicles is noted.

Fig. 2. Shows normal vasogram, normal size of seminal vesicles is noted with contrast media in urinary bladder.

was present in over 50 per cent of infertile couples overall[5]. The etiologies described for male factors include oligoasthenospermia, azoospermia from either testicular failure or reproductive duct obstruction and abnormal sexual function[5]. Based on obstruction of the reproductive duct, obstruction of the epididymis and proximal vas deferens is well recognized and an easily treated cause of male infertility, but more distal obstruction has not been recognized and treated as often[1].

Ejaculatory duct obstruction, although rare, is a surgically correctable cause of male infertility[1]. The obstruction can be either congenital or required. Congenital causes include congenital atresia or stenosis of the ejaculatory ducts and utricular, mullerian and Wolffian duct cyst. Acquired causes may be secondary to trauma, either iatrogenic, infection, inflammation or otherwise. Calculus formation secondary to infection may also cause obstruction[6]. The symptoms of ejaculatory duct obstruction can be variable including infertility, decreased force of ejaculate, painful ejaculation, decreased ejaculate volume, hematospermia, perineal or testicular pain, prostatitis, epididymitis, urinary retention, dysuria, or no symptoms[7]. In this study, we found that all of our patients had no symptoms related to ejaculatory obstruction except infertility. Patients with suspected ejaculatory duct obstruction clinically have normal physical examination including normal testes, absence of varicoceles, palpable vas deferens, normal rectal examination, normal secondary sexual characteristics and normal hormonal profiles. Occasionally, there will be a palpable rectal mass, or prostatic or epididymal tenderness[8].

Semen analysis findings in partial ejaculatory duct obstruction include oligospermia, azoospermia, decreased motility and decreased ejaculate volume (less than 1 ml). In cases of complete obstruction, seminal fluid should be fructose negative. In the past, vasography was the gold standard for diagnosis of this abnormality[8,9]. Due to its invasiveness with risks of iatrogenic stricture and vasal occlusion, transrectal ultrasonography (TRUS)[10] and endorectal coil magnetic resonant imaging (MRI) have become more attractive diagnostic tools [11]. TRUS findings of suspected ejaculatory duct obstruction included a midline cyst, dilated seminal vesicles (more than 1.5 cm) or an hyperechoic region suggesting of calcification at the ejaculatory duct[10].

The standard procedure to treat this abnormality is transurethral resection of the ejaculatory duct (TURED) described by Farley and Barnes in 1973[8]. Several other reports have documented its

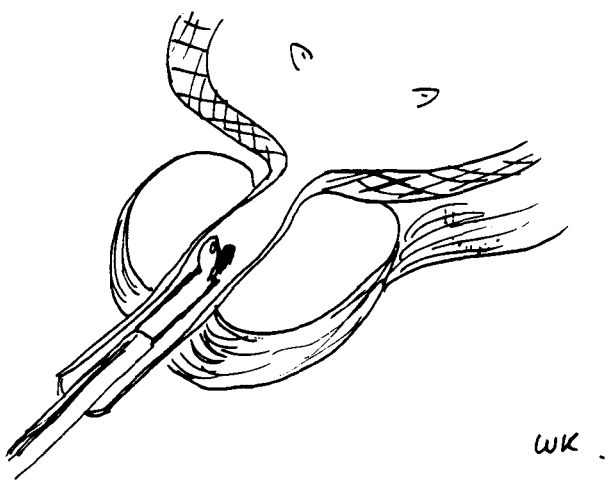

Fig. 3. Shows the technique of transurethral resection of ejaculatory duct (TURED).

efficacy[12]. TURED using a pure cutting current without coagulation is recommended to remove proximal verumontanum. (Fig. 3) Transurethral incision of the ejaculatory duct (TUID) with Collin's knife has also been reported[8]. After the duct patency is obtained, fluid expressed from the resected ejaculatory duct can be seen. The complications reported include urinary retention, hematospermia, orchitis, epididymitis or even urinary incontinence if a too distal resection is done. Other studies on TURED have reported a 50 per cent increase in sperm density and 29 per cent increase in ejaculatory volume [8]. Congenital causes have shown higher success rates more than acquired cases. However, only 25-30 per cent reported ability to impregnate their wives [8]. This study showed a higher rate of impregnation (57%) which may be due to congenital causes and also the small number of patients.

SUMMARY

In an infertile male with oligospermia or azoospermia with low ejaculate volume, normal secondary sex characteristics, testes and normal hormonal profiles, ejaculatory duct obstruction is suggested. TRUS and/or vasography can be done to confirm the dilatation of seminal vesicles and obstruction of the ejaculatory duct. TURED has resulted in marked improvement in semen parameters, and pregnancies have been achieved.

(Received for publication on August 9, 2000)

REFERENCES

1. Meacham RB, Hellerstein DK, Lipshultz LI. Evaluation and treatment of ejaculatory duct obstruction in the infertile male. Fertil Steril 1993; 59: 393-7.
2. Weintraub MP, De Mouy E, Hellstrom WJ. Newer modalities in the diagnosis and treatment of ejaculatory duct obstruction. J Urol 1993; 150: 1150-4.
3. Hellerstein DK, Meacham RB, Lipshultz LI. Transrectal ultrasound and partial ejaculatory duct obstruction in male infertility. Urology 1992; 39: 449-52.
4. Howards SS. Treatment of male infertility. New Eng J Med 1995; 332: 312-7.
5. Gilbaugh JH III, Lipshultz LI. Nonsurgical treat-

ment of male infertility. Urol Clin North Am 1994; 21: 531-48.
6. Goldwasser BZ, Weinerth JL, Carson CC III. Ejaculatory duct obstruction: the case for aggressive diagnosis and treatment. J Urol 1985; 134: 964-6.
7. Pryor JP, Hendry WF. Ejaculatory duct obstruction in subfertile males: analysis of 87 patients. Fertil Steril 1991; 56: 725-30.
8. Goluboff ET, Stifelman MD, Fisch H. Ejaculatory duct obstruction in the infertile male. Urology 1995; 45: 925-31.
9. Jarow JP. Transrectal ultrasonography of infertile men. Fertil Steril 1993; 60: 1035-9.
10. Worischeck JH, Parra RO. Transrectal ultrasound in the evaluation of men with low volume azoospermia. J Urol 1993; 149: 1341-4.
11. Schnall MD, Pollack HM, Van Arsdalen K, Kressel HY. The seminal tract in patients with ejaculatory dysfunction: MR imaging with an endorectal surface coil. Am J Roentgenol 1992; 159: 337-41.
12. Farley S, Barnes R. Stenosis of ejaculatory ducts treated by endoscopic resection. J Urol 1973; 109: 664-6.

ท่อนำน้ำเชื้ออสุจิอุดตันที่ ejaculatory duct : ประสบการณ์การรักษา 7 ราย ณ โรงพยาบาลรามาธิบดี

วชิร คชการ, พ.บ., กฤษฎา รัตนโอฬาร, พ.บ.*,*
เจริญ ลีนานุพันธุ์, พ.บ., วีระ วิเศษสินธุ์, พ.บ.*, วีระสิงห์ เมืองมั่น, พ.บ.**

วัตถุประสงค์ : ศึกษาประสบการณ์การรักษา อาการ อาการแสดง ผลของการรักษา ผู้ป่วยที่มีการอุดตันที่ ejaculatory duct ในหน่วยศัลยศาสตร์ระบบปัสสาวะ ภาควิชาศัลยศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี

ผู้ป่วยและวิธีการ : ศึกษาย้อนหลังตั้งแต่ พ.ศ. 2523-2542 จากเวชระเบียบผู้ป่วย และติดตามผลระยะยาวทางไปรษณีย์และโทรศัพท์

ผลการศึกษา : มีผู้ป่วยที่ได้รับการวินิจฉัยว่ามี ejaculatory duct obstruction 7 ราย อายุ 32-45 ปี (เฉลี่ย 34.5) ทุกรายไม่พบ sperm (azoospermia) โดยไม่ปรากฏอาการอื่น เช่น ปวดขณะหลั่งน้ำเชื้อ หรือปวดอัณฑะ ผู้ป่วยทุกรายมีลักษณะปกติของเพศชาย และมีอัณฑะปกติ ผู้ป่วย 5 ราย (71%) มีผลการตรวจฮอร์โมน (FSH, LH) ปกติ อีก 2 รายสูงกว่าปกติไม่เกิน 1 เท่า ทุกรายได้รับการวินิจฉัยโดยการฉีดสีทำ vasogram พบว่ามีการขยายตัวของ seminal vesicles โดย 5 รายมีขนาดโตกว่า 1.5 ซม. อีก 2 ราย มีขนาด 1 ซม. ผู้ป่วย 6 รายได้รับการรักษาโดยการส่องกล้องตัด ejaculatory duct (TURED) และอีก 1 รายกรีดขยายรูเปิดของ ejaculatory duct (TUIED) หลังการรักษา 3 เดือน 4 ราย (57%) ตรวจพบอสุจิ เมื่อติดตามมาถึง 1 ปี พบว่า 6 ราย (86%) มีผลการตรวจน้ำเชื้ออยู่ในเกณฑ์ปกติ แต่มีเพียง 4 ราย (57%) เท่านั้นที่ภรรยามีการตั้งครรภ์

สรุป : ภาวะการอุดตันของ ejaculatory duct เป็นความผิดปกติที่สามารถรักษาได้ ผู้ป่วยที่มีผลการตรวจฮอร์โมน FSH, LH ปกติ มีลักษณะทางเพศชายที่ปกติ อัณฑะปกติ และมีปริมาณน้ำเชื้อน้อย ไม่พบอสุจิ (azoospermia) หรือ oligospermia สมควรได้รับการสืบค้นต่อด้วย vasogram หรือ transrectal ultrasound หากพบว่ามีการอุดตันของ ejaculatory duct สามารถรักษาโดยการส่องกล้องตัด ejaculatory duct ได้ ผลของการรักษาอยู่ในเกณฑ์ดีพอสมควร แต่ค่าใช้จ่ายต่ำกว่าการส่งผู้ป่วยไปทำการรักษาโดยการผสมเทียม

คำสำคัญ : การเป็นหมันในเพศชาย, ท่อนำน้ำเชื้ออุดตัน, การไม่มีเชื้ออสุจิ

วชิร คชการ, กฤษฎา รัตนโอฬาร, เจริญ ลีนานุพันธุ์, วีระ วิเศษสินธุ์, วีระสิงห์ เมืองมั่น
จดหมายเหตุทางแพทย์ ฯ 2544; 84: 1148-1152

* หน่วยศัลยศาสตร์ระบบปัสสาวะ, ภาควิชาศัลยศาสตร์, คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี, กรุงเทพ ฯ 10400