

Evaluating Menouria-Comparison of X-Ray Cystography and Hysterography

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ABSTRACT

OBJECTIVE: To compare the diagnostic accuracy of X-Ray cystography with hysterography in the evaluation of menouria.

DESIGN: Descriptive study

DURATION AND SETTING: Department of Radiology Civil Hospital Karachi (CHK) from January 1996 to April 2007

PATIENTS AND METHODS: Adult female patients with complaint of menouria were included. Those with non-cyclical hematuria or associated urinary or fecal incontinence were excluded. Patients' demographics, history and physical examination findings were noted. Transabdominal ultrasound of pelvis was done in all cases. Cystography and hysterography were conducted in every case under fluoroscopic control. Radiographic findings were compared against surgical findings. Results were expressed in percentages and means.

RESULTS: Over the 11 years of study period, 12 cases of menouria were encountered. All were secondary to obstetric causes with an age range of 19-25 years and average duration of symptoms as 12 months. Hysterography identified a vesico-uterine fistula in 11/12 (91.66%), cystography in 02 (16.66%) and trans-abdominal ultrasound in 03 (25%). Examination under anesthesia and surgery corresponded with the site and number of fistula in 11 out of 12 cases while detecting a fistula in one case that was not seen on imaging due to the presence of granulation tissue.

CONCLUSION: In this small series hysterography was better than either cystography or transabdominal ultrasound in the diagnosis of menouria due to vesico-uterine fistula. Presence of granulation tissue is a possible source of false negative results on pre-operative radiography.

KEY WORDS: Vesico-uterine fistula, menouria, cystography, hysterography, ultrasound.

INTRODUCTION

Menouria is a term coined for vesical menstruation¹. It follows a fistulous defect above the level of internal os, communicating with the urinary bladder. This results in cyclical hematuria and apparent amenorrhea in an otherwise continent lady. This clinical picture is also known as Youssef's syndrome¹. It is an uncommon condition being encountered in only 1-4% of all cases of genito-urinary (GU) fistulae². Initially thought to be a complication of lower segment caesarian section (LSCS) alone, a variety of causes are now identified including congenital, post-biopsy complication, irradiation and even following the placement of intra-uterine contraceptive device³⁻¹⁰. Since it is an uncommon condition, a variety of pre-operative imaging methods have been employed for its evaluation. These include ultrasound (US), cystography, CT scan, cystoscopy, hysterography and MRI^{7,8,10-12} with varying results. X-Ray cystography and hysterography are two commonly used x-ray techniques which are easy to conduct and provide reproducible images of the anatomy of the genito-urinary fistulae. Unlike ultrasound, these

are not operator dependent. Also, these are not as expensive as CT or MRI of pelvis. It is therefore rational to compare these techniques for evaluation of menouria so that local experience is recorded and local practice guidelines are developed. The aim of this study was to compare the diagnostic ability of the two techniques in cases of menouria.

PATIENTS AND METHODS

This descriptive study was conducted at the Department of Radiology CHK from January 1996 to April 2007. Adult female patients referred for either hysterography or cystography, with complaint of menouria were included. Those with non-cyclical hematuria or associated urinary or fecal incontinence were excluded. Patients' demographics, history and physical examination findings were noted. Transabdominal ultrasound of pelvis was done in all cases. Cystography and hysterography was conducted in every case under fluoroscopic control with aseptic precautions. A small sterile radiographic marker was placed at the urethral opening, the cervical opening being automatically marked by the cervical canula in place. Informed

understood verbal consent was taken from every enrolled patient prior to the procedure. At least three views including a frontal, lateral and an oblique view were taken in every procedure. Radiographic findings were compared against examination under anesthesia (EUA) and surgical findings. Findings were described as percentages and mean.

RESULTS

Of the 12 cases, a vesico-uterine fistula was identified in 11 cases on hysteroscopy (91.66%), in 02 (16.66%) cases on cystography, and in 03 (25%) cases on transabdominal ultrasound. All the patients in this series were young females with mean age of 21.5 years, ranging from 17 to 25 years. Seven had history of obstructed labor with non-instrumental vaginal delivery and 05 had LSCS prior to the onset of symptoms. The mean duration of symptoms was 18 months, ranging from 07 to 38 months. All the fistulous communications were single and located above the level of internal os. Their course was rather sinuous or tortuous with widely varying length and shape. On fluoroscopic control, those were visible as immediate leaking of the contrast administered through cervix, into the bladder and increasing in size on further instillation, without pooling in other soft tissues of pelvis (**Figure I**). A retrograde flow was never noted on hysteroscopy. Both cases on cystography showed a small leakage of contrast into the uterus which was barely visualized on these films and leaked through the cervico-vaginal route. On ultrasound the findings were a hypo-echoic area between the full bladder and uterus with an ill-defined outline of the anterior wall of lower uterine body. A direct tract was never visualized. Surgery corresponded with the site and number of fistula seen in the 11 cases with positive hysteroscopy findings. One more fistula was detected on the former, the uterine ostium of which was covered with granulation tissue.

DISCUSSION

Menouria or Youssef's syndrome is a rarely encountered condition. Bhutta described encountering only 05 cases in 07 years¹¹. In this study, 12 cases were observed over 11 years. Being uncommon, there are no practice guidelines developed for pre-operative diagnosis and evaluation leading the clinicians to select from a wide variety of imaging armamentarium. Ultrasound is easily available and has been reported for the evaluation of genito-urinary fistulae¹¹⁻¹³. Czaplicki et al, even recommended that sonographic visualization of genito-urinary fistulae obviates the need for hysteroscopy¹². However, not all fistulae are picked by ultrasound. Adetiloju et al, convincingly showed that demonstration of fistulae by ultrasound alone is poor compared with examination under anes-

FIGURE I:

HYSTEROGRAPHY IMAGE SHOWING THE COURSE OF VESICO-UTERINE FISTULA. THE CONTRAST ADMINISTERED THROUGH CERVIX IS POOLING ANTERIORLY INTO THE BLADDER



thesia and is complimentary to the latter in general¹⁴. It was also witnessed in the present study where only 03 out of 12 cases were detectable on ultrasound. Ultrasound conducted in this series was the trans-abdominal type and hence the findings were rather non-specific. The only confirmatory sign was presence of the positive findings on hysteroscopy. Trans-vaginal ultrasound is better at visualizing the genito-urinary fistulae¹³ but it was not available in the department in the earlier years of the study. So it was not employed in all cases and hence its results were not considered for inclusion. MRI evaluation of pelvic fistulae has also been recommended^{10,15}. Cost and availability of MRI remain major issues particularly for those who cannot even bear the expense of antenatal care¹³. CT scan can also visualize GU fistulae but the practice is not widely accepted⁷. This leaves the two common x-ray techniques which are evaluated in this study namely the x-ray cystography and hysteroscopy. These two modalities are among the basic pre-operative tests^{6,8,11,12}. The main idea is to visualize the level of defect and its relation with ureteric orifice¹¹. The defect lies above the level of internal os so that the menstrual flow is diverted to bladder but urine does not flow to the uterus. The phenomenon was also observed in this series where contrast was imme-

diately leaking to bladder on administration through internal os but the reverse was not observed. It is postulated to be due to high intra-uterine pressure as compared to the intra-vesical pressure¹⁶. This was the most likely reason for the non-specific cervical leakage of contrast that was visible on real time fluoroscopy only. By the time it was captured on film the appearance was non-convincing to be considered for pre-operative planning of surgery. It was also observed that combining a multitude of views provided optimal imaging. In 03 cases fistulae were laterally placed and best delineated on oblique views. Placing a radio-opaque marker at the urethral orifice also helped in identifying the relation to urethra. This little modification in technique for specific indication can therefore be employed. Surgery and EUA confirmed the site and number of fistula in all the positive hysteroscopy cases. The one case that was missed on the latter was shown to have granulation tissue in the tract which was covering the uterine end of the tract. Hence the phenomenon of partial healing can be a cause of false negative results on pre-operative radiography. Menouria due to vesico-uterine fistula is a preventable obstetric complication. Complete pre-operative emptying of bladder, adequate intra-operative reflection of bladder from uterus, and timely recognition and repair of the bladder injury helps to prevent it¹¹. Spontaneous closure and hormonal therapy has been reported^{5,6,16}. Majority recommends surgical repair^{6,7,11,12}. Prospects of future fertility as described as low to fair^{11,17,18}.

CONCLUSION

In this small series hysteroscopy was better than either cystography or transabdominal ultrasound in the diagnosis of menouria due to vesico-uterine fistula. Presence of granulation tissue is a possible source of false negative results on pre-operative radiography.

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