

Mersilene Complication in Bladder Exstrophy Repair: Report of 3 Cases

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ABSTRACT

Bladder exstrophy is one of the rare bladder anomalies. It needs complex surgical management. The main surgical procedures include bladder closure, epispadias repair, and pelvic stability with innominate bone osteotomy and symphysis pubis repair. Mersilene is a synthetic material that can be used for symphysis repair. The authors report Mersilene sinus formation and infection in 3 cases of bladder exstrophy. The cases were managed by Mersilene removal without any further effect on pelvic stability.

KEYWORDS: Bladder exstrophy; Pelvic stability; Mersilene complication

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INTRODUCTION

Bladder exstrophy is a rare condition affecting approximately 1 in 30,000 births [1]. It involves failure of inferior midline mesenchymal migration and fusion, resulting in both soft tissue and bony deformities. The urinary bladder and urethra are open on the abdominal wall with a wide diastasis of the symphysis pubis. The external genitalia are dysmorphic.

The goals of surgical repair are to close the bladder, urethra, and abdominal wall, achieve continence, preserve renal function, and construct functional and cosmetically acceptable external genitalia. However, urological closure of the bladder is sometimes not possible [2] and the failure rate of the corrective surgery is high. Most commonly, the cause of failure is a dehiscence of the midline closure caused by tension exerted by the uncorrected pelvis.

To minimize the failure rate, a pelvic osteotomy is performed in most cases to normalize the pelvic ring and allow approximation of the symphysis [3]. This reduces tension on the abdominal wall. The reduction in tension decreases

stress on the repaired bladder and abdominal wall, which is followed by a lower rate of wound dehiscence after urological repair [4]. In fact, the urological results achieved in patients with exstrophy correspond closely with the degree to which the pubic diastasis is closed [5]. Repairing the pelvic ring also allows reconstruction of the levator ani and puborectalis and placement of the bladder neck and urethra within the pelvic ring. This results in a greater rate of urinary continence [6].

Pelvic correction includes pelvic osteotomy and symphysis pubis repair. There are 5 different materials that can be used in symphysis pubis repair: (1) nylon; (2) nonabsorbable suture; (3) Mitek G2 suture; (4) a strip of tendon; (5) Mersilene (Ethicon, Inc., Somerville, NJ). The best stiffness is achieved with Mersilene suture [7].

The authors performed 16 bladder exstrophy repairs over the last 20 years. Nylon was used for symphysis pubis repair in 13 of the 16 patients. These 13 patients were at the ideal time of repair within their first year of life, which is considered the state of the art. The remaining 3 patients presented at older ages (3, 4, 11 years).

Table 1. Case Demographics, Surgical Procedures, Presenting Symptoms, Time of Presentation, and Time of Mersilene Removal. doi: 10.3834/uj.1944-5784.2009.10.01t1

Variable	Case 1	Case 2	Case 3
Sex	Female	Male	Male
Age at exstrophy repair (years)	11	4	3
Order of diagnosis	First diagnosed case	Second diagnosed case	Third diagnosed case
Procedure	Bladder augmentation and continent catheterizable stoma (monti)	Closure of bladder and abdominal wall	Closure of bladder and abdominal wall
	Closure of bladder and abdominal wall	Epispadias repair	Epispadias repair
	Closure of bladder neck		
	Vulvoplasty		
Medical illness	Sickle-thal	None	None
Presenting symptom	Granulation tissue; odorous skin discharge	Granulation tissue with mersilene knot	Granulation tissue
Postoperative presentation with skin sinus (months)	9	10	9
Postoperative Mersilene removal (months)	13	11	10

The effect of late correction of bladder exstrophy on the outcome of repair and pelvis stability is not well known. Sussman et al [7] compared different materials for pelvis repair in patients needing exstrophy. Their study showed that Mersilene tape resulted in better pelvis stiffness when load was applied when compared with nylon, metric, and wire. Therefore, the authors chose Mersilene for these 3 patients. Their management and outcome is the subject of the present report.

CASE REPORTS

Three patients (1 female; 2 males) presented for surgical correction of exstrophy at an older age. All 3 patients underwent osteotomy and symphysis pubis repair with Mersilene by pediatric orthopedic and bladder closure by the urology team. Table 1 contains the case demographics, surgical procedures, presenting symptoms, time of presentation, and time of Mersilene removal.

The female patient was 11 years old. She had one stage repair at which she underwent augmentation cystoplasty with continent cutaneous abdominal stoma (Monti) because of small bladder capacity, vulvoplasty, and osteotomy with Mersilene symphysis repair.

The 2 male patients were 4 and 3 years old. They had single stage repair that included bladder closure, epispadias repair, and osteotomy with Mersilene symphysis pubis repair.

All 3 patients had pelvis external fixation for 6 months. They had an uneventful postoperative period with good wound healing. Small granulation tissue arising at the caudal end of the wound overlying the symphysis pubis developed 9 months postoperatively. This recurred despite using silver nitrate. The granulation tissue became infected and formed a sinus draining pus. Culture-specific antibiotics did not show any response. Subsequently, wound debridement was performed under general anesthesia which revealed the Mersilene knots. The orthopedic team was consulted for pelvis stability and they agreed on Mersilene removal.

Mersilene was removed and skin edges were refreshed. The patients received debridement and closure of skin with nonabsorbable nylon for 10 days. They were discharged on broad-spectrum antibiotic. Figure 1 shows the sinus excision (a) and the sinus excised and Mersilene removed (b). The patients expressed happiness that they were relieved of the social embarrassment of the discharge and its bad smell.

Figure 1. (A) Sinus excision; (B) Sinus Excised and Mersilene Removed.

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After the operated area healed, there was no discharge and the stitches were removed. Pelvis stability was not affected by Mersilene removal.

The authors have not seen any additional patients with exstrophy since these patients were treated. However, they presume that the Mersilene posed an increased infection risk because it is woven, braided material. They plan to use monofilament material (nylon) for all patients in the future.

CONCLUSION

The authors advise reconsidering Mersilene (woven, braided material) in pelvis exstrophy repair because it might increase infection risk. Other materials such as nylon, nonabsorbable suture, or mitek G2 can be used.

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