Successful Repair of an Unusual Hernia Associated With Traumatic Pubic Diastasis

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A 70-year-old man had an unusual type of supravesical small bowel hernia associated with herniation of the bladder through a traumatic diastasis of the pubic symphysis. The diastasis was closed with prosthetic mesh through a preperitoneal approach. In patients in whom a scrotal hernia develops after a previous pelvic fracture, especially those with evidence of a pubic diastasis, an unusual type of hernia should be suspected. A preperitoneal surgical approach best reveals the anatomy and allows appropriate repair. The best procedure for prevention of such hernias is primary reduction of any substantial pubic diastasis, but operative intervention is not indicated in all patients.

Severe pelvic trauma frequently results in injuries to the bladder and urethra, especially when the pelvic injury involves fracture of the anterior pelvic ring. Perineal herniation of the bladder or unusual abdominal hernias are infrequent late complications of pelvic fractures associated with separation of the pubic symphysis. We recently treated a man who had previously sustained a severe pelvic fracture and diastasis of the pubic symphysis. A supravesical hernia of the small bowel developed in association with herniation of the urinary bladder, an association that has not been previously reported. The purposes of this report are to draw attention to the possibility of herniation through a traumatic diastasis of the pubis and to describe a successful approach to the repair of this unusual condition.

REPORT OF CASE
The patient, a 70-year-old man, had been healthy until 2 years previously, when he was thrown from the saddle while riding a horse and struck his anterior pelvis twice on the saddle horn. The patient sustained a pelvic fracture and an 8-cm diastasis of the pubic symphysis. He had a severe contusion of the bladder but no urethral injury, and he was treated at his local hospital with a pelvic sling. The hospital course was complicated by a perineal abscess, which was treated by perineal drainage and a diverting colostomy. At dismissal 2 months later, he was ambulating with a walker.

A few weeks later, symptoms of urinary obstruction developed, and a right "scrotal hernia" was noted. He underwent a transurethral resection of the prostate and subsequently had persistent urinary incontinence. The colostomy was closed 2 months later, and a right inguinal herniorrhaphy was performed for treatment of a presumed direct inguinal hernia. The hernia recurred immediately, and attempted repair with Marlex mesh 4 months later was again unsuccessful.

The patient was referred to our medical center 18 months later for evaluation of the recurrent right scrotal hernia, urinary incontinence, partial impotence, and minor residual gait problems. Physical examination revealed a massive scrotal hernia and a large pubic diastasis (Fig. 1). The
scrotal hernia was reducible through the pubic diastasis. A pelvic roentgenogram confirmed a 6-cm pubic diastasis associated with a pronounced deformity of the right side of the sacrum and ankylosis of the sacroiliac joints (Fig. 2 A). Cystography confirmed anterior displacement of the bladder through the pubic diastasis (Fig. 2 B).

The patient underwent urologic evaluation because of the urinary incontinence. Results of cystometry, electromyography, and uroflowmetry were normal, but the urethral pressure profile was abnormal. The maximal closing pressure was 20 cm H₂O, a finding that was believed to be consistent with injury to the sphincter mechanism perhaps associated with the transurethral resection and unrelated to the perineal hernia.

Because of the stability of the pelvis and minimal abnormalities of gait, surgical correction of the pubic diastasis was considered unnecessary, and surgical repair of the hernia was undertaken. The preperitoneal space was entered through a transverse lower abdominal incision 3 cm above the pubic tubercle, and both inguinal areas were exposed from behind. The upper portion of the bladder and a large hernia sac (approximately 8 by 8 by 6 cm) protruded through the pubic diastasis into the right side of the scrotum. No direct or indirect inguinal hernia was present on the right; the hernia sac contained small bowel and was easily pulled back into the abdomen. The anterior wall of the bladder was dissected from the edge of the pubic diastasis to the neck of the bladder. The anterior wall of the bladder and the small bowel had herniated through the pubic diastasis and extended down along the right spermatic cord into the right hemiscrotum. A sheet of Marlex mesh was fashioned to fit the

Fig. 1. Preoperative photograph of right scrotal hernia in 70-year-old man with traumatic diastasis of pubic symphysis.

Fig. 2. A, Pelvic roentgenogram of 70-year-old man with right scrotal hernia, demonstrating large pubic diastasis. B, Retrograde anteroposterior view cystogram, showing herniation of bladder through pubic diastasis.
defect between the tubercles. With use of inter-
rupted, nonabsorbable, 0-monofilament sutures, 
this prosthetic material was sewn to the peri-
osteum of both pubic tubercles and Cooper’s 
ligaments laterally, to the undersurface of the 
fascia transversalis and posterior rectus sheath 
anteriorly, and, after being draped over the 
bladder neck, to the puboprostatic ligaments 
posteriorly.

Although the patient did well postoperatively, 
swelling of the right superior scrotal area per-
sisted. Because a recurrence of the hernia could 
not be excluded, the wound was reexplored on the 
sixth postoperative day. Markedly edematous 
scrotal tissue and a small local seroma were 
oberved, but the repair was completely intact. 
Subsequent convalescence was uncomplicated, 
and the patient was dismissed from the hospital 
10 days later.

At the 3-month follow-up examination, the 
anatomic result was excellent. There was no evi-
dence of recurrent hernia, and the swelling in the 
right scrotal area had completely disappeared 
(Fig. 3). The incontinence, however, has not 
appreciably improved. To date (1½ years post-
operatively), the hernia has not recurred.

DISCUSSION

Normally, the bladder is supported by the tri-
angular urogenital diaphragm stretching be-
tween the symphysis pubis and the two ischial 
tuberosities. The anterior pelvic ring, the pelvic 
fascia, the puboprostatic ligaments, and the pubo-
vesical ligaments fix and maintain its position. 
Any disruption of these supportive structures 
places the bladder at risk of herniation. 7 “Trau-
matic diastasis” of the pubis not only disrupts 
the supporting structures but also may disrupt the 
supporting structures of the bladder and urethra.

Herniation of the bladder associated with trau-
matic diastasis of the symphysis is rare, however; 
a search of the English literature revealed only 
three previously published cases.6-8 In 1978, Fuhs 
and colleagues8 treated a patient with this con-
dition by wiring the pubic bodies together to 
achieve partial reduction of the pubic diastasis 
and then inserted mersilene mesh between the 
bladder and the pubis. Foster and associates7 
used a bone graft to obliterate the pubic diastasis, 
whereas Ponka and Obeid9 closed a traumatic 
pubic diastasis by suturing Marlex mesh to 
both Cooper’s ligaments. These investigators 
concluded that posttraumatic hernias through 
the pubic symphysis are best prevented by im-
mediate reduction and internal fixation of the 
inciting pelvic fracture.

Pelvic fractures may also be associated with 
unusual hernias of the anterior abdominal wall. 
Ryan9 described five patients in whom hernias 
of the anterior abdominal wall occurred after 
pelvic fractures. These hernias were thought to 
be caused by a rupture of the transversalis muscle 
and fascia at the time of the pelvic injury but 
became evident only after the patients became 
fully ambulatory. Supravesical hernia is a well-
described entity10,11 that arises from a defect in 
the supravesical space and may subsequently 
extend to a prevesical, paravesical, or retrovesical 
position. External protrusion through the in-
guinal floor or femoral canal has also been ob-
served. Other hernias, including obturator, sci-
atic, and even perineal hernias, may occur after 
severe pelvic fractures associated with extensive 
bony disruption. Our patient was unusual in that 
a supravesical hernia of the intra-abdominal con-
tent was superimposed on a perineal herniation 
of the bladder. It is important, therefore, to con-
sider unusual types of hernias if a scrotal hernia 
occurs shortly after a pelvic fracture. Care should 
be taken in distinguishing a true inguinal hernia 
from other unusual types of hernias. The index 
of suspicion should be high if early recurrence 
is noted after repair of an “inguinal” hernia.

If an unusual hernia is suspected, a pre-
peritoneal approach through a lower abdominal 
transverse incision provides the best exposure not
only to both groins (thus allowing repair of both
direct and indirect inguinal hernias) but also to
the supravesical and prevesical areas. Patients
with traumatic pubic diastasis and symptoms of
urinary obstruction should undergo a complete
urologic investigation, including cystography, to
exclude symptomatic herniation of the bladder.
The patient described in this report had post-
traumatic symptoms of urinary obstruction that
could well have been due to herniation of the
bladder.

Finally, as discussed by Ponka,11 primary sur-
gical repair of the pubic diastasis would certainly
prevent herniation, but this operative interven-
tion may not be indicated in most patients.

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