Case Report

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Blunt Traumatic Rupture of the High Right Ureter, Repaired with Appendix Interposition

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Key Words

Appendix
Ureter substitution

Abstract

We report the first case of upper lumbar ureteral replacement with the vermiform appendix, in a blunt traumatic ureter rupture with important urinoma. In selected cases, in which the appendix has a required caliber and length, the vermiform appendix is a very good autograft for ureteral substitution. The vermiform appendix must be preserved if possible in the abdominal surgery.

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Introduction

Ureteral replacement with appendix has been reported on very few occasions [1-7]. However no report was available on successful results when the appendix was applied as a ureteral substitution in a traumatic rupture of the lumbar ureter with urinoma. We report a case in which repair of the ureter by conventional methods was not possible, where an appendix interposition of the ureter was done.

The appendix with its mesum was transected through the right mesocolon to the right retroperitoneum. Both ureteral segments were spatulated with a minimal ureteral dissection. The appendix was irrigated with saline, the tip was discarded, and both ends were spatulated. The appendix was anastomosed end-to-end to the ureter, isoperistaltically, with one layer of 5/0 polyglycolic acid interrupted sutures. A nephrostomy and a double J catheter were placed. A pyelogram performed 7 days after the operation showed a small leak in the superior anastomosis. Three weeks later an antegrade pyelogram demonstrated a normal anastomosis without extravasation and no stasis of contrast (fig. 1). One year later the urogram showed a normal kidney function with moderate dilation of calices and pelvis and normal drainage of the right ureter and appendix (fig. 2).

Case Report

A 21-year-old man had a traffic accident with a right hemothorax and brain contusion. Three weeks after he had been discharged from hospital, he came to our center with right flank pain and a right abdominal mass.

The computed tomography showed a right retroperitoneal liquid collection with ipsilateral hydronephrosis. This collection was punctured, drained, and contrasted, detecting a big urinoma. The uro-gram and the retrograde uretrogram demonstrated a total rupture of the ureter at an upper level without ureteropelvic stricture and no other urologic lesion.

Three weeks later the patient was surgically explored and a 7-cm-long ureteral defect was found. There was a 4-cm segment of proximal ureter, and important retroperitoneal fibrosis at the level of the urinoma.

Availability of a large appendix (8 cm), with a long mesum encouraged the consideration of appendix interposition. The appendix was sectioned, the mesum was dissected widely, and the appen-

Discussion

Blunt traumatic rupture of the ureter is a very uncommon complication. The upper lumbar ureter, up to 3-4 cm of the ureteropelvic union, has the worst ureteral vas-cularization, and the wide mobilization of this ureteral area very easily causes ischemic necrosis. The anastomosis with the vermiform appendix needs a minimum dissection, owing to the similar caliber of both structures. This is an important advantage of this technique.

We transposed the appendix graft through the right mesocolon toward the right retroperitoneum. This technical step has not usually been described [1-3], and it allows an easy retroperitoneal anastomosis.

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Fig. 1. Pyelography: arrows mark the appendix graft.

Fig. 2. Urogram performed 1 year later. It showed normal kidney function with moderate dilation of calices and pelvis. Arrows mark the appendix graft.

Although the use of the appendix for repairing the ureter has previously been reported, appendix interposition has only been published on very few occasions [1-7]. This is the first case described of ureteral substitution after blunt traumatic rupture with a big urinoma, and it showed that even in the worst local conditions, the use of the appendix is valid.

In the relevant literature, as in our case, the upper anastomosis developed a fistula [1, 3,4]. In this area there is less vascularization of the appendix than in the base. We think that this is the reason which may explain this problem. The upper anastomosis must be performed very carefully, avoiding the use of appendix areas that show poor vascularization.

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