Subcutaneous reservoir placement during penile prosthesis implantation

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Currently, the prosthesis of choice for patients undergoing penile prosthesis surgery is a three piece inflatable device, as this provides optimal inflation and deflation when compared to a one or two piece prosthesis. However, prior pelvic surgery or radiation therapy can obliterate the retropubic space and make placement of the reservoir required for a three piece prosthesis difficult. We report a novel location for reservoir placement in a man who had undergone multiple pelvic surgeries after suffering a severe pelvic crush injury.

Key Words: three piece penile prosthesis, ectopic, reservoir

Case

A 42-year old morbidly obese male was followed in our clinic for erectile dysfunction after suffering a severe pelvic crush injury. His initial injury included an open book pelvic fracture with an extraperitoneal bladder rupture. His post-operative course was complicated by wound infections necessitating multiple hardware revisions. During one of these revisions, the bladder was inadvertently injured requiring surgical repair. As a result of his initial injury, the patient developed erectile dysfunction. He responded poorly to both oral and intracorporal injection therapies, and elected to proceed with placement of an inflatable three piece penile prosthesis (Mentor Alpha I® with Lock-out Valve™ Reservoir; Mentor Corp., Santa Barbara, California).

The cylinders and pump were placed through a transverse scrotal incision. Given the patient's very large pannus, prior pelvic injury, and subsequent pelvic surgeries as well as his bladder injuries, we were reluctant to place the reservoir in the pelvis. We took advantage of his large pannus to place the reservoir ectopically in his subcutaneous tissue. A 4 cm transverse incision was made in the right lower quadrant, and the subcutaneous tissue was dissected inferior to the incision and down to the level of the external abdominal oblique fascia. The reservoir was implanted in this subcutaneous pocket. The abdominal incision was closed in several layers after tunneling the tubing from the reservoir to the scrotum.

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The patient's post-operative course was uncomplicated. He began using his prosthesis 6 weeks after implantation and reported excellent function. At his most recent follow up visit 5 months after his procedure, the reservoir could not be palpated and the prosthesis continued to inflate and deflate without difficulty. The patient denied problems with auto-inflation or abdominal discomfort and did not have tenderness to palpation over the reservoir site.

Discussion

Penile prosthesis implantation is an option for patients with erectile dysfunction (ED) who have either failed to respond to, or are dissatisfied with, first or second line therapies. Currently, the device of choice in penile prosthesis surgery is the three piece inflatable prosthesis, as this provides optimal inflation and deflation when compared to one or two piece penile prostheses.[1] Unfortunately, many patients requiring prosthesis placement have an obliterated retropubic space due to prior pelvic surgery or radiotherapy.[2] In such cases, surgeons may be reluctant to implant a three piece prosthesis due to concern regarding difficult reservoir placement resulting in injury to pelvic structures.

Options for these patients include placement of a two piece penile prosthesis, which avoids the need for a reservoir. However, a two piece prosthesis will have decreased inflation and deflation when compared to a three piece prosthesis. Ectopic placement of the reservoir in the peritoneal cavity or epigastrium has been previously reported.[3] However, this approach requires a second incision through the fascia, leading to increased operative time and post-operative discomfort. Wilson et al reported ectopic placement of the reservoir beneath the abdominal musculature but above the transversalis fascia.[4] While this approach eliminates the need for a second incision, this technique risks injury to the inferior epigastric vessels, and led to a palpable reservoir in three of eight patients.

Subcutaneous reservoir implantation does raise concern for increased risk of auto-inflation due to proximity to the abdominal musculature. In a series of 160 patients undergoing three piece prosthesis placement with a reservoir lock-out valve, Wilson et al reported a 1.3% rate of auto-inflation. None of the eight patients with an ectopic reservoir location in this series complained of auto-inflation.[4] In patients with an obliterated extraperitoneal space undergoing ectopic reservoir implantation, use of a reservoir lock out valve may decrease the need for surgical revision due to auto-inflation.

Our patient's morbid obesity allowed for a novel approach to placement of an ectopic reservoir. The patient had an obliterated extraperitoneal space due to an open book pelvic fracture and subsequent pelvic surgeries. Given the patient's very large pannus, we elected to place the reservoir in the subcutaneous tissue of the abdomen. This approach allowed us to place a three piece prosthesis while avoiding a second incision through the fascia or blind placement of the reservoir below the abdominal musculature. Due to the patient's abundant subcutaneous tissue, the reservoir could not be palpated, and operative time and postoperative pain were reduced by avoiding an incision through the abdominal wall. □

References

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