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AN MRI-BASED STUDY OF RETROPUBIC HAEMATOMA FOLLOWING SLING PROCEDURES: PRELIMINARY REPORT

Hypothesis / aims of study

Modifications in sling technique have resulted in broader indications, reduced morbidity and shorter hospital stay. By using a rectus fascia substitute, one can avoid the Pfannenstiel incision and eliminate the morbidity associated with fascial harvesting. However paraurethral vaginal dissection and perforation of the endopelvic fascia to facilitate passage of the sling may result in bleeding which tracks up into the retropubic space. There are no prospective studies in the literature of retropubic haematoma incidence detected by imaging.

It is likely that retropubic haematoma could lead to increased postoperative morbidity such as pain, fever, vaginal bleeding and suprapubic wound haematoma /infection. It is also possible that postoperative bladder emptying efficiency (EE) might be impaired and in turn hospital stay prolonged by such haematomas. The true incidence of haematoma formation is unknown particularly in the setting of no or short-term vaginal packing.

The aim of this study was to determine, using MRI, the incidence of retropubic haematoma and any associated clinically significant effects following xenograft (acellular porcine dermis) sling (XS) or the tension-free vaginal tape (TVT) procedure.

Study design, materials and methods

Between October 2003 and March 2004, 24 consecutive patients presenting with stress urinary incontinence (SUI) were enrolled in this prospective study. Twelve patients each underwent XS or TVT. A vaginal balloon pack was used for only 3 hours after XS and not at all after TVT. All patients underwent pelvic MRI 6 to 8 hours postoperatively. Our primary outcome measure was the incidence and distribution of retropubic haematoma after each sling technique. Secondary outcome measures included time interval to the first three spontaneous voids, bladder emptying efficiency of the first three voids, VAS pain score at 24-hour postoperatively, and short-term (6 months) SUI cure rate.

Results

Overall, six patients (4 in the XS and 2 in the TVT) developed a retropubic haematoma. Most commonly, they spread along the right paravesicourethral space between the right half of the levator ani and the bladder neck. Patients with large haematomas took significantly longer to void (median 14.5 v. 6.0 hr, $p = 0.048$). There was no difference in pain score in patients with or without haematoma. None of the patients had clinically detectable haematomas in the suprapubic wound. All 6 patients with haematomas were dry at 6 months follow-up.

Interpretation of results

Our study has shown an overall 25% incidence of retropubic haematoma detected by MRI after xenograft or TVT sling. Early retropubic haematoma often appears as an area of low to medium signal intensity on the T1-W sequence, due to residual oxyhaemoglobin and deoxyhaemoglobin present in intact red blood cells. The greater number of haematomas in the XS group suggests that blunt perforation (as opposed to trocar) of the endopelvic fascia may indeed increase the incidence of retropubic haematoma. However, because of the small numbers in this study, differences were not significant ($P = 0.346$, Fischer's exact test). Interestingly, haematomas may affect postoperative emptying ability as there was a significant delay in time to first void in those with large haematomas and there was a trend towards poorer EE in patients with haematoma (table1).

Concluding message

MRI is a useful non-invasive modality for the detection of early postoperative retropubic haematomas. This study has shown a surprisingly high incidence of retropubic haematomas especially after the xenograft sling procedure. Retropubic haematomas may influence postoperative voiding efficiency.

Table1: Emptying efficiency (EE) differences in patients with and without haematoma. Values are given as median (interquartile range). P values are given for Mann-Whitney U test.

No. of voids	EE (%) in pts. with haematoma (n=6)	EE (%) in pts. without haematoma (n=18)	P
1st void	40 (25-64)	58.5 (38-78)	.081
2nd void	60 (35-75)	76 (57-94)	.119
3rd void	68 (40-80)	80.5 (60-94)	.187