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Pardo J[1], Ricci P[1], Solà V[1]
1. *Clínica Las Condes*

LOWER TRACT URINARY INJURIES ASSOCIATED TO MID-URETHRAL SLINGS FOR STRESS URINARY CORRECTION SURGERY.

Hypothesis / aims of study

The female urinary incontinence is a highly prevalent condition that affect for up to one-third of the adult population and is associated with significant negative effects on quality of life with negative impact.[1] Actually the stress urinary incontinence should be treated with physiotherapy and pelvic floor exercises or with surgery. Slings have good long term success rates of more than 85%. A great number of techniques have been described for treatment of urinary incontinence. The first technique was TVT described during 1996 for Ulmsten. During the last decade many devices have been described in an attempt to simplify the first procedure. During 2001 Delorme described the TOT technique. During 2003 Jean de Leval described de TVT-O. During 2006 were published the minisling, the TVT-Secur and MiniArc. All these techniques seek a simplification of the first generation of tapes to treat the urinary incontinence leading to shorter hospitalisation and fewer complications. For this reason they are called minimally invasive surgery. But this does not mean they are free of complications. We hypothesized that the new techniques introduced during the last decade for surgical treatment of urinary incontinence have similar or less complication in the low tract urinary compared with the first and classic TVT technique. This study aims to compare the injuries in the low tract urinary between TVT and TVT-O, TOT, TVT-Secur and MiniArc.

Study design, materials and methods

Retrospective study of 642 consecutive patients submitted to surgical correction of symptomatic urinary incontinence, with TVT, TVT-O, TOT, TVT-Secur or MiniArc, between January 2006 and January 2010, at Urogynecology and Vaginal Surgery Unit, Clínica Las Condes, Santiago, Chile.

The range of age was between 35 and 72 years old, media 53 years old. The BMI was between 23 and 37, media 28. The vaginal parity was between 0 and 5, media 3. The group of patients revised for TVT was 127 women, 265 for TVT-O, 40 for TOT, 150 for TVT-Secur and 60 for MiniArc.

Complication in the lower tract urinary associated with the passage of the needle and the meshes in the different devices were searched. The resolution and probably cause were analyzed and discussed. Lower tract urinary was considered: urethra and bladder.

Results

The group of women with TVT presented 6 (6/127, 4.7%) cases of bladder perforation: 2 cases in the right side, 2 case in the left side and 2 cases in both sides. All complications were observed during the routinely cystoscopy none was suspected before. The needle was retired and again was passed checking the bladder indemnity by a second cystoscopy.

The TVT-O presented 2 (2/265, 0.8%) cases of bladder perforation in the left side and 1 (1/265, 0.4%) case of urethral perforation. The urethral perforation case corresponded to a woman with an important deviation of urethra observed with cystoscopy. This woman had antecedent of failed Burch performed three years ago. All cases of lower tract urinary were suspected by the observation of blood in the urinary meatus or in the urinary catheter. The cystoscopy revealed the perforation in all cases. The needle was retired and again passed.

The TOT group presented 1 (1/40, 2.5%) case of bladder perforation. It was suspected by observation of urine through the tape. A cystospy demonstrated the perforation in the left side. The needle was retired and again passed. A Foley urinary catheter remained for two days.

The TVT-Secur group presented 2 (2/150, 1.3%) cases of bladder perforation in the left side. In both cases the tape was passed in “U” position closer the urethra. It was suspected by presence of urine in the entrance area of the tape under the mid-urethra. A cystoscopy demonstrated the perforation. The needle was retired and again passed. A Foley urinary catheter remained for two and three days.

The MiniArc group did not presented (0/60, 0%) cases of bladder or urethral perforation.

In all cases of lower tract urinary perforation the injury not affected the continence results.

When was analyzed the complication probably the cause of bladder perforation in obturator techniques (TOT and TVT-O) was insufficient emptying of the bladder before the passage of the needle. In cases of TVT-Secur complications were due to insufficient deviation of the urethra and bladder with the mobilizing device. In cases of TVT were bladder perforation due to both insufficient emptying and mobilizing.

Interpretation of results

Our results demonstrated that the second (TOT and TVT-O) and third generation (TVT-Secur and MiniArc) of devices for stress urinary incontinence surgery are not free of complication.

Stress urinary incontinence is a common and costly condition with significant negative impact on the quality of life because has devastating effects on their social, professional and family life; for this reason is very important simplify the devices for reducing the risk during the surgery associated with the insertion of the tape. TVT had a greater number of cases with bladder perforation compared to other techniques. Of all devices TVT needle is the more larger and thicker, so it could cause further damage on the lower urinary tract during perforation and may be the cause for a greater number of perforations of bladder compared with other techniques. However, in our experience cases of complication during TVT were not more serious or more difficult to resolve, the resolution was the same for all types of tape. In all cases a Foley urinary catheter remained for two or three days. Unlike our experience some publications demonstrated that most of the injuries occurred during the learning curve. Similar to our experience, other publication demonstrated that the cure rates are similar with or without injury because this complication not affects the position in mid-urethral position.[2]

In other point, in our experience the urethral perforation is not common complication. It was observed in a case with urethral deviation secondary to previous failed Burch surgery and was resolved easily removing the needle with tape and repositioning, without affecting the results of surgery. When was analyzed the probably cause of bladder perforation in all cases was insufficient mobilizing or emptying bladder. Shorter tapes as in minisling are not free of bladder perforation, neither the obturator techniques that are installed away from the bladder. In all cases the cystoscopy was the instrument that detected the complication intraoperatively to resolve immediately. This is an important point because not all techniques considered a routinely cystoscopy, for example the obturator technique (TVT-O and TOT). It is important consider a cystoscopy when lower tract urinary injury is suspected.

Concluding message

The bladder perforation is more frequent complication affecting lower tract urinary during passage of needle in surgeries for urinary incontinence with first, second and third generation devices. The bladder perforation is more frequent during classical retropubic TVT surgery. However, lower urinary tract perforation is a complication easy to resolve requiring only stay of a urinary catheter for several days.

The urethral perforation is uncommon complication in cases treated with first, second and third generation of sling.

References

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Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**Because it is a retrospective review**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**