

## SEPSIS FOLLOWING TVT SLING PROCEDURE. A SERIOUS BUT UNCOMMON COMPLICATION

### Hypothesis / aims of study

Tension-free vaginal tape (TVT) is a common medical procedure to treat symptoms of stress incontinence, with few side effects. The most known complications are damage to urinary bladder and postoperative urinary tract infection. (1) Only few reports exist regarding serious infections following TVT procedure (2). Here, we review the literature and four cases of serious vaginal tape infections at an urogynecologic clinic.

### Study design, materials and methods

In March 2017 we searched Medline and Embase using the following keywords and medical subject heading (MeSH) search-terms: TVT, urinary incontinence, mesh, infection, complication and sepsis. Furthermore, we included cases complicated with mesh infections observed at our department (a referral department for advanced urinary incontinence. Totally, 150 TVT procedures are performed annually) during 2016. During 2016 we observed four cases with severe sepsis following TVT (Gynecare TVT Exact, Ethicon Inc., Somerville, NJ) mid-urethral sling procedure. All cases were submitted due to signs of infection and abdominal pain following placement of the TVT sling. All cases were followed carefully. All patients gave informed consent to the use and description of their case.

### Results

One report was discovered during our search reporting infection following TVT reoperation (3). Accordingly we present cases observed at our department.

**Case 1:** The patient was a healthy 37-year old woman, operated with TVT without complication due to stress incontinence.

The patient was evaluated by her general practitioner four days after the TVT procedure due to lower urinary tract symptoms and received Mecillinam (400mg x3 daily), orally. One day later, the patient was admitted to the emergency unit with high temperature (40°C), hypotension (90/57mmHg), elevated C reactive protein (CRP) 303 mg/L and low White Blood Cell (WBC) count 1,89 \*10<sup>9</sup>/L. Arterial blood test showed pH =7,43, Lactate 3,4 mmol/L. Abdominal CT-scanning presented an abscess (4x6 cm) in the right iliac fossa, with an air cavity around the TVT sling. CRP increased to 404 mg/L and WBCs to 28,4 \*10<sup>9</sup>/L at day 2.

The woman received fluid resuscitation, Piperacillin and Tazobactam (Tazocin®)(4000+500mg dosis x3 daily) at admission intravenously for 10 days, with i.v. Metronidazol (500mg x3) added the day after admission, for 10 days. The TVT sling was removed seven days after the primary operation without complication. The sling was loose, did not adhere to the tissue and was covered with purulent discharge. Drains were placed at the vaginal incision.

The patient received intravenous antibiotics for three days post operative, followed by oral Phenoxyethylpenicillin (Primcillin ©) (800 mg x3) and Metronidazol (500mg x3) for additional seven days, recovered and was discharged 11 days after admission. The patient is followed in our outpatient clinic.

**Case 2:** The patient was a healthy 51 year old woman with mixed urinary incontinence, primarily stress incontinence and received a TVT without complications.

The patient was admitted two days after surgery due to acute abdominal pain, fever 39,3°C and redness and swelling around the vaginal incisions for the TVT. The patient had elevated CRP 202 mg/L and WBC count 19,5 x 10<sup>9</sup> /L on admission.

The patient was treated with intravenous Cefuroxim 1,5g x3 daily and i.v. Metronidazol 500mg x3 daily, but had persisting pain and fever with rising WBC count from 13,2 to 15,9 x 10<sup>9</sup> /L, along with CRP 99 mg/L. MRI six days after admission showed inflammatory reaction around the tape, but no hematoma or abscess. The TVT was removed seven days after resubmission (nine days after surgery). The tape was covered in purulent discharge, but no signs of further abscesses were found.

The patient's condition improved after removal of tape, and was discharged five days later, after total 11 days of i.v. antibiotics and plan for additional 7 days of treatment with oral antibiotics Amoxicillin + clavulanate acid (Bioclavid ©) 500+125 mg x3 and oral Metronidazol 500mg x3. The patient is still followed in our outpatient clinic.

**Case 3:** The patient was a healthy 41-year old woman with stress incontinence and received a TVT without peroperative complications.

The patient was admitted two days after operation with abdominal pain and without fever presenting a 1,6x6 cm subcutaneous hematoma. Blood analysis showed a CRP of 217 mg/L, and elevated WBCs 17,1 x10<sup>9</sup> /L. The patient received intravenous Cefuroxim 1,5g x3 daily, and i.v. Metronidazol 500mg x3 daily.

Four days after admission CRP was 171 mg/L and WBC count 15,7 x10<sup>9</sup> /L. The patient remained afebrile. Ultrasound showed no sign of abscess but purulent discharge was seen leaking from the left side abdominal tape incision, and consequently, the tape was removed seven days after insertion. Purulent discharge was drained from the compartment around the tape including irrigation. Postoperative drains were inserted and removed the following day, one day early due to patient discomfort. The patient received intravenous postoperative antibiotic treatment for five days postoperative, followed with oral antibiotics Phenoxyethylpenicillin (Primcillin ©) 800mg x3 daily and Metronidazol 500mg x3 daily for two weeks. The patient was discharged five days after re-operation to out-patient follow-up.

**Case 4:** The patient was a healthy 42-year old woman with stress urinary incontinence who received a TVT without complications.

The patient was admitted three days after operation with swelling and pain around the tape's lateral abdominal incisions. The patient had 37,9°C and a subcutaneous hematoma was observed 4x5 cm on the left side. There were no additional signs of infection or abscess. The patient received treatment with oral antibiotics Pivampicillin (Pondocillin ©) 500mg x3 daily and Metronidazol 500mg x3 daily and oral analgesics.

The following day, the patient developed fever 40,1°C. Blood analyses showed CRP 294 mg/L and WBC count of 22 x10<sup>9</sup> /L. Antibiotics were changed to Cefuroxim 1,5g x3 and Metronidazol 500mg x3 intravenously daily and scheduled for operative revision of the tape.

The tape was removed at day six including drainage of the abscess. The infection was unilateral, and the tape was easy to remove at the right side but more adherent in the left side, where no signs of infection were found.

The day after re-operation, the patient was afebrile and received in total six days of i.v. antibiotics and then follow-up treatment after discharge with oral antibiotics Pivampicillin (Pondocillin ©) 700mg x3 daily for 14 days and Metronidazol 500mg x3 daily for seven days. Blood analysis at the last day of intravenous treatment showed CRP of 26 mg/L and WBC count  $16,2 \times 10^9$  /L. The patient is still followed in our out-patient clinic.

### **Interpretation of results**

Infection in relation to TVT is obviously underreported. The reason for this phenomenon is not clear. Our results indicate, that in case of infection related to the tape, this should be removed immediately. Furthermore, appropriate intravenous antibiotics should be offered. MRI is useful in detecting abscess or hematoma following the procedure.

Our cases revealed no relation regarding bacterial pathogens or the technique used for placement of the tape. All cases received peroperative intravenous antibiotics Cefuroxim 1,5g Metronidazol 1000mg intravenously.

### **Concluding message**

Although infection appears following TVT procedure, the sling is easy to remove and should be removed as soon as mesh infection is discovered.

### **References**

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### **Disclosures**

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