Surgical Treatment of Vulvar Vestibulitis

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Vulvar Vestibulitis Syndrome (VVS)  
Localized Provoked Vestibulodynia (LPV)

- A pain syndrome
- Severe pain by touch in the vulvar vestibular mucosa
- Severe introital dyspareunia, often intercourse impossible
- Mostly young fertile-aged women with a prevalence of 4 – 8%
- Etiopathogenesis unknown

Treatment
- Conservative management
  - Creams, neuromodulation, physical and sexual therapy
- Surgery: posterior vestibulectomy
Vestibulodynia

- Terminology
- Clinical features of the disease
- Etiopathogenesis
- Treatment
  - Multidisciplinary vulvar clinic
  - Vestibulectomy
2003 ISSVD:
"Vulvar discomfort, most often described as burning pain, occurring in the absence of relevant visible findings or a specific, clinically identifiable neurologic disorder.

Moyal-Barracco M, Lynch P.
JReprodMed 2004
2003 ISSVD Vulvodynia Subtypes

- Localized provoked vulvodynia /vestibulodynia
  = Vulvar vestibulitis syndrome

- Generalized unprovoked vulvodynia
  = Dysesthetic vulvodynia
Vulvar vestibulitis syndrome VVS

- Diagnostic criteria (Friedrich 1987)
  - Pain on vestibular touch or on attempted vaginal entry
  - Positive swab-touch test on gland openings
    - allodynia
  - No visible findings, mild erythema may be present

Donders G.
Medical Hypotheses 2012
Prevalence of vulvodynia

- Several studies in the USA 2002-2008 based on web-surveys with a confirmation of diagnosis by a gynecological examination:
  
  4% - 8%

  Reed 2006, Obstet Gynecol
  Harlow 2009, J Women Health
Clinical Features of Vestibulodynia

- **Pain syndrome**
  - Localized pain on vestibular touch
- Itching, sensation of dryness
- Susceptibility to vaginal infectious diseases
- Urinary tract symptoms
  - Anterior vestibulitis / IC
- Elevated tone of pelvic floor muscles / Vaginismus
Etiopathogenesis

Neurogenic Inflammation
(Heparanase, MMPs, NGF)

Infection
Trauma

Specific immunogenetic characteristics,
Persistent inflammation

Local factor
(Hormone receptors)

Dysregulation of inflammation

Nerve endings ↑
More superficial **

Altered central sensory processing
Sentral sensitation

ALTERED PAIN SENSATION
Allodynia

* Witkin S 2002,
Foster D 2007,
** Bornstein 2010
Tympanidis P 2003
Histopathology of Vestibulodynia

Normal vestibular mucosa

Vestibulitis chronica
Neurogenic inflammation

Increased density of nerve endings
(S-100)

Neurogenic inflammation
Leads to altered pain sensation due to neurotransmitters from immune cells and nerve endings under prolonged inflammation

Neurogenic inflammation:
- Heparanase from mast cells degrades basal membrane allowing nerves to intrude the Superficial epithelium

Superficial extension of nerve endings
(PGP-9.5)
Diagnosis

- **Interview**
  - Dyspareunia, VAS 0 – 10
    - Pain on penetration,
    - Introital pain

- **Status**
  - Signs of dermal disease?
  - Chronic yeast
  - Swab-touch test
  - Palpation of pelvic floor muscles,
    - vaginismus
Treatment

Multidisciplinary vulvar clinic

- Gynecologist
- Dermatologist
- Physiotherapist
- Sexual therapist / counseling
- Gynecologic surgeon
Treatment

Multidisciplinary vulvar clinic

Pain management

- **Medication**
  - Tricyclic and other antidepressants, anti-epileptics
  - Topical lidocaine (gel, ointment)
  - Topical Gabapentin ointment

- **Surgery**
  - Vestibulectomy

The pelvic floor

- Treatment of concomitant vaginismus

Psychosexual health
Vestibulodynia

- Patient counseling
- OC withdrawal
- Hygiene protocol
- Physiotherapy / Bio-feedback

- Recurrent candidiasis therapy:
  - Fluconazol 150mg
  - 1-2 x /w for 2 – 3 mo

- Neuromodulation:
  - Gabapentin cream
  - Topical anesthetics

- Sexual counseling/therapy

- Counseling for surgery
  - Vestibulectomy

\[ VAS \geq 7 \text{ at 18 mo} \]
Indications for Vestibulectomy

- Surgery to treat pain
- Long history of severe symptoms
  - At least 12 months period of dyspareunia, VAS ≥7
- Localized provoked vestibulodynia
- Spesific dermal diseases ruled out
- Refractory to conservative treatment
Vestibulectomy

- Woodruff's perineoplasty
- Modified perineoplasty
- Vestibulectomy
- Posterior vestibulectomy
- Modified vestibuloplasty
- Simplified vestibulectomy
- Vestibuloplasty
  - Davis G. 12th congress of the ISSVD 1993

Tommola P. et al.
Acta Obstet Gynecol Scand. 2010
Modified posterior vestibulectomy

Tommola P., et al.
Acta Obstet Gynecol Scand. 2011
Post-operative Care

- Ice packages / cold gel packages
- Methronidazole 400 mg x 3 for 3 days
- NSAID and / or paracetamol
- Sick-leave for 2 to 3 weeks
- Arter-checks at one and two months
  - Dilatation with probes
  - Resuming intercourses
Healing

One month

Two years
Surgical treatment of VVS

- Around 40 studies with long-term follow-up
  - 1981 - 2010

- Patient satisfaction at long-term around 85%

- Non-optimal outcome
  - Residual pain
  - Related residual symptoms interfering with sexual well-being
  - Problems related to surgery – long-term complications
    - Scarring 2%
    - Bartholin duct cyst 5 – 7%
    - Recurrences 7%

Aims of the Studies

- To evaluate the safety and the effectiveness of posterior vestibulectomy in the treatment of severe vulvar vestibulitis (= localized provoked vestibulodynia)
  a retrospective cohort study
  Tommola P, Unkila-Kallio L, Paavonen J.
  Acta Obstet Gynecol Scand 2011

- To compare long-term well-being of women with severe vulvar vestibulitis managed with or without surgery
  a case – control study
  Tommola P, Unkila-Kallio L, Paavonen J.
  Acta Obstet Gynecol Scand 2012
Study Design
Long-term follow-up study

- Fifty-seven women treated for severe VVS
- Duration of dyspareunia 4.0 years (1 - 18)
- Severe dyspareunia, VAS ≥ 7, refractory to conservative management
- Posterior vestibulectomy operation (1996 - 2007)
- Follow-up visit 3.0 (0.5 -13.1) years after vestibulectomy
Outcome Measures

- Dyspareunia by visual analogue scale (VAS) 0-10
- Vestibular tenderness
  - Swab-touch test
- Sexual well-being
  - McCoy instrument
- Somatic and mental health
  - EQ5D-VAS, Beck DI
- Overall patient satisfaction
  - Personal interview
Posterior vestibulectomy
– long-term outcome (n = 57)

- VAS decreased by 66.7 %
  - Baseline VAS 9.0 (5-10)
  - VAS at follow-up 3.0 (0-10)
- Overall satisfaction
  - Partial or complete response 45 (91%)
  - Would choose the operation again 47 (89%)
CONSERVATIVE TREATMENT GROUP
N = 27 (54%)
Median time to follow-up visit
44 months
Long term follow-up visit
N = 66
- Gynecological examination
- VAS for dyspareunia
- Face-to-face interview
- Health questionnaires

SURGERY GROUP
N = 39 (75%)
52 patients not responding to conservative management → posterior vestibulectomy
13 not consented

50 patients responding to conservative management*

23 not consented

CONSERVATIVE TREATMENT GROUP
N = 27 (54%)
* Similar disease histories and equal timing of treatment period in cases and controls
Outcome Measures

- Dyspareunia by visual analogue scale (VAS) 0-10
- Vestibular tenderness
  - Swab-touch test
- Sexual well-being
  - McCoy instrument
- Somatic and mental health
  - EQ5D-VAS, Beck DI
- Overall patient satisfaction
  - Personal interview
## Patient Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Surgery group N = 39</th>
<th>Conservative treatment group N = 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline dyspareunia by VAS (median, IQR 25%-75%)</td>
<td>9.0 (8.0 –10.0)</td>
<td>8.0 (8.0 – 9.0), ( p&lt;0.05 )</td>
</tr>
<tr>
<td>History of dyspareunia, years</td>
<td>5.0 (1 – 18)</td>
<td>4.0 (1 – 16)</td>
</tr>
<tr>
<td>Age at first visit</td>
<td>24.5 (16 – 48)</td>
<td>23.5 (18 – 32)</td>
</tr>
<tr>
<td>Primary disease, %</td>
<td>25.9</td>
<td>30.8</td>
</tr>
<tr>
<td>Nulliparous, %</td>
<td>82.1</td>
<td>96.1</td>
</tr>
<tr>
<td>Duration of the conservative treatment period, months</td>
<td>18.5 (4 – 55)</td>
<td>16.0 (3 -129) ( \text{highlighted} )</td>
</tr>
<tr>
<td>Duration of follow-up, months</td>
<td>47 (11 – 114)</td>
<td>77 (34 – 131), ( p&lt;0.05 )</td>
</tr>
<tr>
<td>Atopic skin problems, %</td>
<td>14.3</td>
<td>46.2 ( p=0.009; \text{OR 0.2} )</td>
</tr>
</tbody>
</table>
**Swab-touch test**

### Anterior tenderness

**Surgery group**

- **N = 35**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>No</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>Mild</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Severe</td>
<td>13</td>
<td>37</td>
</tr>
</tbody>
</table>

**Conservative treatment group**

- **N = 24**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>No</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>Mild</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Severe</td>
<td>11</td>
<td>46</td>
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</table>

**Posterior tenderness**

- **p < 0.001**

<table>
<thead>
<tr>
<th></th>
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<th>%</th>
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<tbody>
<tr>
<td>No</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>Mild</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Severe</td>
<td>4</td>
<td>11</td>
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- **p = 0.857, ns**

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<tr>
<th></th>
<th>N</th>
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<tbody>
<tr>
<td>No</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Mild</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Severe</td>
<td>15</td>
<td>63</td>
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</tbody>
</table>
## VAS for Dyspareunia

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<tbody>
<tr>
<td>N = 39</td>
<td>N = 27</td>
<td></td>
</tr>
<tr>
<td><strong>VAS for current dyspareunia,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>median (IQR25%-75%)</td>
<td>3.0 (0.5 – 4.8)</td>
<td>2.0 (0.0 – 3.0)</td>
</tr>
<tr>
<td><strong>VAS change from baseline to</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>follow-up, median (range), %</td>
<td>6.0 (2.9 – 10.0), 66.7%</td>
<td>6.3 (-1.5 – 10.0), 78.1%</td>
</tr>
<tr>
<td>Sexually active, %</td>
<td>Surgery group N = 39</td>
<td>Conservative treatment group N = 27</td>
</tr>
<tr>
<td>---------------------</td>
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</tr>
<tr>
<td>81.1</td>
<td>72.0</td>
<td></td>
</tr>
</tbody>
</table>

**Sexual well-being, McCoy**

<table>
<thead>
<tr>
<th>Sexual satisfaction -index (5 – 35)</th>
<th>22.5 (11–31)</th>
<th>25 (9 – 29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership satisfaction-index (2-14)</td>
<td>12 (8 – 14)</td>
<td>12 (7 – 14)</td>
</tr>
<tr>
<td>Sexual problems-index (2 –14)</td>
<td>7 (2 – 14)</td>
<td>7 (2 – 12)</td>
</tr>
</tbody>
</table>
## Overall Patient Satisfaction

<table>
<thead>
<tr>
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<th>Conservative treatment group, N=27</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N=39</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete response*, %</td>
<td>36.1</td>
<td>25.9</td>
</tr>
<tr>
<td>Partial response**, %</td>
<td>52.8</td>
<td>63.0</td>
</tr>
<tr>
<td>No response***, %</td>
<td>11.1</td>
<td>7.4</td>
</tr>
<tr>
<td>Worse than at baseline</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

* Completely cured  
** Still some complaints  
*** Not better than at baseline
Conclusions

- Long-term outcome is satisfactory in both vestibulectomy and in conservative treatment groups
- Vestibulectomy can be recommended in refractory patients as a safe and effective treatment option
International Society for the Study of Vulvovaginal Disease

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www.nva.org
www.issvd.com
www.vdopas.com
www.pelvicus.fi