Guido Weyand, Marianne Siewers, Zurap Avazashvili, Thomas Gehrke

Laser Hemorrhoidoplasty
The Experience Gained with a Minimally-Invasive Surgical Method
Laser Hemorrhoidoplasty
The Experience Gained with a Minimally-Invasive Surgical Method

Hemorrhoids rank among the most frequently suffered anal problems. Advanced stages frequently require surgical treatment. Traditional surgery sometimes involves violent pain and extended surgical periods. Since 2006, Laser Hemorrhoidoplasty has been existent as alternative treatment for advanced hemorrhoids. This article describes the experiences made by 225 patients.

Actually, the increasing number of patients suffering from insufficient or impeded coagulation calls for adequate coagulation management that frequently forces the proctologist or general practitioner in charge to avoid required surgery or to peri-operatively adjust the patient e.g. to expensive low-molecular heparin. Throughout the last two decades, especially Stapler hemorrhiodopexy has turned to be a low-pain alternative for severe hemorrhoids. Nevertheless, the supra-anal mucosa resection involved with this method causes a severe circular trauma. Being initially hyped and later complemented by the specification of possible complications, the method turned out to be a perfect selective treatment option, especially for circular and multi-level hemorrhoids.

Since 2006, Laser Hemorrhoidoplasty (LHP) has been available as additional minimally-invasive alternative treatment of advanced hemorrhoid problems [2]. The 1470-nm diode laser made by Biolitec® serves to submucosally denaturize hypertrophic hemorrhoidal tissue and thus make it smaller. So far, various differing methods have been described: the probe is submucosally introduced either peri-anally or intra-anally, individual pulses or a constant energy-flow is deployed, and closed mucopexy may be applied or not simultaneously. We have been applying LHP since 2010. Initially being regarded non-resecting method with much reservation, this minimally-invasive procedure has by now established itself as first choice treatment especially for segmental hemorrhoids of category 3.

Laser Hemorrhoidoplasty – It only takes one four millimeter peri-anal skin incision per each hemorrhoidal segment

As regards the surgical procedure: after putting the patient in lithotomy position, we first anesthetize the pudendal nerve on both sides by Naropin. When

Guido Weyand¹, Marianne Siewers¹, Zurap Avazashvili², Thomas Gehrke¹

¹ Department of Surgery, Center for Minimally-Invasive Proctology, Kreisklinikum Siegen, ² Department of Surgery, Sana Klinikum Düsseldorf-Gerresheim
the need for surgery has been confirmed through revision by using Parks’ retractor, we first provide for short distance-mucopexy if necessary, i.e. closed mucopexy with submucosal Z-suture with insertion at two and four centimeters above the Linea dentata dental line. Afterwards, the skin is incised in about 1 to 1.5 cm distance from the anal edge concentrically for about 4 millimeters (+ Fig. 2) and the peri-anal skin/anodermis tunneled with the scissors to the edge of the internus. The pointed laser probe (+ Fig. 1) is then quickly driven sub-anodermally/submucosally until it has reached the area underneath the distal rectal mucosa (+ Fig. 3). This is followed by about six pulses (adjusted to respective dimensions) of approx. 30 Joule per node; half of which highly submucosal, the other half high intra-nodal. The tissue’s response can be clearly discerned by the light reduction: contraction is occasionally observed immediately, however usually after the surgery has been completed. When the probe has been removed, the edge of the wound is soaked with Scandicain. Finally, a tamponade covered with Eulatin cream is inserted to the anal canal and the lower rectum. It is removed two to six hours later.

We examined and/or interviewed the patients the night the surgery took place, the first and the second post-surgical day and additionally subjected them to proctoscopy two days and two, six and 24 weeks after surgery in order to evaluate the long-term effects.

Table 1 The most frequent indication is segmental hemorrhoids of the third category. Hemorrhoids of the fourth category are likely to be persistent and/or recurrent. Anticoagulation and CED were not related to an increased peri-surgical risk. In one case, a previously suffered from incontinence problem of category 1 to 2 improved.

<table>
<thead>
<tr>
<th>Pre-surgical patient characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 2</td>
<td>11 %</td>
</tr>
<tr>
<td>Category 3</td>
<td>87 %</td>
</tr>
<tr>
<td>Category 4a</td>
<td>2 %</td>
</tr>
<tr>
<td>Anticoagulation:</td>
<td>n</td>
</tr>
<tr>
<td>Marcumar</td>
<td>3</td>
</tr>
<tr>
<td>ASS + Clopidogrel</td>
<td>4</td>
</tr>
<tr>
<td>Heparinization</td>
<td>2</td>
</tr>
<tr>
<td>Liver damage</td>
<td>2</td>
</tr>
<tr>
<td>CED (without anal involvement or acute phase):</td>
<td></td>
</tr>
<tr>
<td>Crohn’s disease</td>
<td>3</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>2</td>
</tr>
<tr>
<td>Recurrent after external Longo procedure</td>
<td>2</td>
</tr>
<tr>
<td>Recurrent after external Parks/Milligan-Morgan procedure</td>
<td>3</td>
</tr>
<tr>
<td>Pre-surgical incontinence</td>
<td>2</td>
</tr>
</tbody>
</table>
Laser Hemorrhoidoplasty is also suitable treatment for those suffering from coagulation disorders or CED and can be carried out under local anesthesia.

The pre-surgical symptoms (n=305) have been detailed in Figure 4. On the whole, 143 additional procedures were being carried out, among them 87 mucopexies (62%), 29 rectal ligatures (21%), 16 skin tag excisions (11%), and 11 other procedures (8%, among them 2 fissures, 1 fistula, 2 STARR). Five interventions were carried out under local anesthesia. On average, the surgical procedure extended over 14 minutes. Averagely, 2.6 nodes of category 2.6 were being treated. Each patient was exposed to averagely 446 J applied. The impression of post-surgical pain (scale: 0 = “pain free” to 2 “heavy pain”) was on the day surgery took place rated at 0.5. On the first post-surgical day it was at 1.2, on the second at 0.6. Two weeks later only individual patients still suffered from pain.

Complications:
Hb-relevant bleeding after four to 14 days 3.6 %
segmental edematous anal prolapse 3.6 %
urinary retention 2.6 %

Complications within the following six months:
submucosal fistula 0.9 %
shortened warning period passager 1.8 %
lastingly 0.9 %

112 patients (99%) experienced general improvement. 88 of them (78%) did not suffer from any problems anymore, 25 patients (22%) continuously suffered from pre-surgical symptoms (8 itching/Burning/Wetting, 8 bleeding, 9 prolapse). The symptom relevance was at 92 percent (280 of 305 described symptoms). 93 percent of all patients were happy with the result of the surgery; 96 percent of them would advise others to undergo the same procedure and undergo it again personally.

Conclusion: Laser Hemorrhoidoplasty is a nearly pain-free, minimally-invasive procedure of high long-term symptom relevance and patient satisfaction. 96 percent of all patients would advise others to undergo the same procedure and undergo it again personally. CED-patients can be treated by LHP unless they are in an acute stage and/or suffer from ano-rectal involvement.

With respect to reposition and tissue reduction, the functional effects of Laser Hemorrhoidoplasty are comparable to reconstructions according to Parks. Among our patient stock, LHP is characterized by high long-term symptom relevance and patient satisfaction. As regards the low number of complications suffered, we additionally refer to the high percentage of additional surgical procedures simultaneously carried out as well as to the treatments performed in the initial phase of this comparatively new minimally-invasive surgical procedure and the treatments that served for demonstration purposes. The surgery should from now on also be carried out by traditionally experienced surgeons. The best indication for it is segmental hemorrhoids of category three and two. Long-term complications are extremely rare. When it comes to circular confluent hemorrhoids or those of category 4a, we do not believe that this method serves to replace PPH and/or traditional treatments. An interesting aspect in terms of health-economics is the chance to perform this procedure on the growing number of patients suffering from coagulation disorders, whereas the frequency of specific complications does not experience any increase. The procedure’s drawback is the fact that probe and equipment are costly compared to traditional surgery. Prospective and comparative studies are required for further evaluation.

Literature


Dr. med. Guido Weyand
Zentrum für minimal-invasive Proktologie/
Center for Minimally-Invasive Proctology
Klinik für Allgemein- und Viszeralchirurgie/
Department for General & Abdominal Surgery (Head: Dr. med. T. Gehrke)
Kreisklinikum Siegen
Weidenauer Strasse 76
D-57076 Siegen, Germany
Phone: guidoweyand@staff.uni-marburg.de
Email: www.schmerzen-waren-gestern.de