



# IS SURGICAL TREATMENT OF COMPLICATED HEMORRHOIDS DURING PREGNANCY SAFE? A RETROSPECTIVE ANALYSIS OF 13 PATIENTS AND LITERATURE REVIEW

## GEBELERDE KOMPLİKE HEMOROİDLERİN CERRAHİ TEDAVİSİ GÜVENLİ Mİ? 13 HASTANIN RETROSPEKTİF ANALİZİ VE LİTERATÜRÜN GÖZDEN GEÇİRİLMESİ

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### Özet

**Amaç:** Literatürde çok sınırlı sayıda olan; gebelerde komplike hemoroidlerde cerrahi tedavinin güvenli olup olmadığını belirlemek amacı ile kliniğimizde gebelik sürecinde cerrahi tedavi uygulanan hastaların tedavi sonuçlarını sunmayı amaçladık.

**Materyal ve Metot:** Ocak 2011 ve Nisan 2018 yılları arasında hemoroid cerrahisi uygulanan hastaların dosyaları geriye dönük olarak incelendi. Konservatif ve/veya medikal tedaviden fayda görmeyen hastaların yaş, gebelik ayı, daha önceden hemoroidal hastalık ve anorektal cerrahi öyküsü, başvuru şikayeti, ek hastalıkların varlığı, vücut kitle indeksi, daha önce medikal tedavi alıp almadığı, fizik inceleme bulguları, kolonoskopi/rektoskopi sonuçları, eşlik eden diğer anorektal bölge hastalıkları, yapılan ameliyat tekniği, komplikasyon varlığı, hastanede kalış süresi, kontrol muayenesi ve tedavi sonuçları kayıt altına alındı.

**Bulgular:** Hemoroid cerrahisi uygulanan kadın hastaların 13 (%17.8)' ü gebe idi. Hastaların 8 (%61.5)' i 3. trimesterde, 4 (%30.7)' ü 2. trimesterde ve 1 (%7.6)' i 1. trimesterde idi. En sık başvuru şikayeti ağrı ve kanama idi. Ortalama yaş 30 (20-40) yıl ve vücut kitle indeksleri 27 (23-36) kg/m<sup>2</sup> idi. Hastaların 9 (%69.2)' na hemoroidektomi (milligan morgan veya ferguson tekniği ile), 2 (%15.3)' ne hemoroidektomi ve sfinkterotomi, 1 (%7.6)' e hemoroidopeksi ve 1 (%7.6)' ne trombektomi uygulandı. Ortalama ameliyat süresi 30 (10-35) dk ve hastanede kalış süresi 2 (1-3) gün idi. Erken dönemde 11 (%84.6) hastada ağrı ve 1 (%7.6) ileus tablosu görüldü. Hastalarımızda erken ve geç dönemde başka komplikasyon olmadı.

**Sonuç:** Gebelik sürecinde oldukça sık görülen hemoroidal hastalığın öncelikli tedavisi medikal ve konservatif yöntemler olmalıdır. Ancak akut hemoroidal hastalığın varlığında; yeterli cerrahi, anestezi ve teknik olanaklara sahip merkezlerde hemoroidal cerrahi düşük komplikasyon oranları ile uygulanabilmektedir.

**Anahtar Kelimeler:** Gebelik, hemoroid, hemoroidektomi, hemoroidopeksi

### Abstract

**Aim:** We reviewed the treatment outcomes of pregnant women who received surgical treatment at our center with the intention of assessing safety of surgical intervention for complicated hemorrhoids during pregnancy; a subject on which there is limited literature.

**Material and Methods:** Records of the patients who received surgical treatment for hemorrhoids between January 2011 and April 2018 were retrospectively analyzed. The information of the patients who did not respond to medical and/or conservative management was recorded by taking the following parameters into account: age of the patient, month of pregnancy, history of hemorrhoids or anorectal surgery, presenting complaints, comorbidities, body mass index, previous medical treatment, physical examination, colonoscopy/rectoscopy results, co-existing anorectal disorders, the surgical procedures performed, complications, duration of the hospital stay, follow-up examination and the outcome of the surgical procedure performed.

**Results:** Thirteen (17.8%) of the female patients who received surgical treatment were pregnant. Eight (61.5%) of the pregnant patients were in the third trimester, 4 (30.7%) were in the second trimester, while only 1 (7.6%) was in the first trimester. The most common presenting complaints were pain and per rectal bleeding. Mean age of the patients was 30 (20-40) years, whereas mean body mass index was 27 (23-36) kg/m<sup>2</sup>. Hemorrhoidectomy (Milligan-Morgan or Ferguson) was performed on 9 (69.2%), hemorrhoidectomy and sphincterotomy on 2 (15.3%) patients, hemorrhoidopexy on 1 (7.6%) patient while excision of thrombus was performed on 1 (7.6%) patient. Average length of the surgical procedure was 30 (10-35) minutes whereas the duration of the hospital stay was on average 2 (1-3) days. During the early postoperative period 11 (84.6%) patients complained of excessive pain while ileus was observed in 1 (7.6%) patient.

**Conclusion:** Hemorrhoidal disease is quite common during pregnancy and medical/conservative treatment should be the first-line remedy. But for the patients presenting with acute hemorrhoidal disease, surgical intervention can be applied with minimal risk of complications at centers with adequate surgical, anesthetic and technical capabilities.

**Keywords:** Hemorrhoids, Hemorrhoidectomy, Hemorrhoidopexy, Pregnancy.

## **Introduction:**

Hemorrhoids are part of normal anatomy of distal rectum and anal canal<sup>1</sup>. Hemorrhoidal connective tissue consists of smooth muscles and vascular tissue covered by mucosa. It plays a role in defecation and ensuring continence. Even though its exact etiology is not clear hemorrhoidal disease is a multifactorial disease that can be attributed to factors such as eating habits, toilet habits, constipation/diarrhoea, genetic factors, age, gender, long standing hours, strenuous exercise and existence of various medical problems<sup>1</sup>. Hemorrhoidal disease is very common in the society and mostly treated with lifestyle audit, changes in nutritional habits, sitz baths and medical treatment (topical or systemic) methods. Surgical treatment can be used in cases where the symptoms do not resolve with these conservative methods, and in conditions such as large prolapsed hemorrhoid packets, recurrent thrombosis, presence of external components, ulceration, presence of gangrene, and co-existing fissure and fistula that require surgical intervention<sup>2</sup>.

Treatment of hemorrhoidal disease varies with severity of the disease, personal risks and medical conditions. Conditions such as inflammatory bowel diseases, chronic liver disease, pregnancy, immunosuppression, lymphoma/leukemia etc. may complicate the treatment process. One needs to be careful when faced with these conditions that limit medical treatment and also make surgical intervention risky. Pregnancy is one of these special conditions.

There is increased risk of hemorrhoidal disease<sup>3</sup> and acute crisis (prolapsus, thrombosis and intractable pain) during the second and third trimesters. For normal population surgical treatment is a viable option in case of acute crisis. But during pregnancy, most surgeons postpone the surgery as much as

possible due to the complications of the surgery and anesthesia which can affect the mother and the fetus. It is mostly difficult to draw the thin line between the complicated symptoms of hemorrhoidal disease and the possible complications of the surgery.

In our study we intend to present the treatment outcomes of pregnant women who received surgical treatment at our center with the intention of assessing safety of surgical intervention (hemorrhoidectomy, hemorrhoidopexy, thrombectomy) for complicated hemorrhoidal disease during pregnancy; a subject on which there is limited literature.

## **Material and Methods:**

Medical records of the patients who received surgical treatment (hemorrhoidectomy, hemorrhoidopexy, thrombectomy) for hemorrhoids between January 2011 and April 2018 were retrospectively analyzed. The study was approved by Baskent University Institutional Review Board (Project no: KA 18/101) and supported by Baskent University Research Fund. Files of a total of 251 patients were analyzed. Of these patients 142 (66.1%) were male while 73 (33.9%) were female. Thirteen (17.8%) of the female patients were pregnant. The information of the patients who did not respond to medical and/or conservative management was recorded by taking the following parameters into account: age of the patient, month of pregnancy, history of hemorrhoids or anorectal surgery, presenting complaints, comorbidities, body mass index, previous medical treatment, physical examination, colonoscopy/rectoscopy results, co-existing anorectal disorders, the surgical procedures performed, complications, duration of the hospital stay, follow-up examination and the outcome of the surgical procedure performed. Based on the physical examination, the hemorrhoids were classified into 4

groups according to the extent of symptoms (Table 1).

**Table 1 Classification of hemorrhoids according to severity of physical examination findings**

<b>Grade I:</b> Haemorrhoid is small, protrudes into but does not prolapse out of anal canal and can be visualised merely by anoscopy and characterised only by bleeding.
<b>Grade II:</b> Haemorrhoid protrudes during defaecation or straining, but spontaneously reduces and returns to internal position upon the cessation of straining.
<b>Grade III:</b> Haemorrhoids prolapse constantly but can be pushed back manually with exertion of little effort.
<b>Grade IV:</b> Haemorrhoids prolapse permanently and cannot be reduced.

In our study acute hemorrhoidal disease was defined as acute thrombosis of external hemorrhoids, prolapsus and strangulation of internal hemorrhoids, that thrombosed, ulcerated or were gangrenous.

Obstetrics and neonatal pediatric departments were consulted before surgical intervention. The patients who underwent minimally invasive procedures such as hemorrhoid ligation (suture, elastic band; transanal/endoscopic), hemorrhoidal artery ligation, sclerotherapy, cryotherapy, monopolar diathermy (electrocautery) and coagulation, infrared coagulation and laser coagulation were excluded from the study.

### Statistical Analysis:

SPSS 23.0 package program was used in the statistical analysis of the data. Categorical measurements were summarized as numbers and percentages while continuous measurements were summarized as mean and standard deviation (median, minimum-

maximum where necessary). In comparing categorical variables Chi-Square test was utilized. Statistical significance was taken as value of 0.05 for all tests.

### Results:

Thirteen (17.8%) of the female patients who received surgical treatment were pregnant. All the patients had hemorrhoidal disease complaints prior to pregnancy. Eight (61.5%) of the pregnant patients were in third trimester, 4 (30.7%) were in second trimester, while only 1 (7.6%) was in first trimester. The most common presenting complaints were pain and per rectal bleeding. Mean age of the patients was 30 (20-40) years, whereas mean body mass index was 27 (23-36) kg/m<sup>2</sup>. All the patients had previous medical management for the condition at other centers before applying to our surgical clinic. Seven (53.8%) of the patients received further medical/conservative treatment at our center but showed no progress. All the patients had acute hemorrhoidal disease preoperatively. Twelve (92.35) patients had acute hemorrhoidal disease secondary to grade 3 or 4 internal hemorrhoids while 1 (7.6%) patient had acute thrombosis of external hemorrhoid. Preoperatively colonoscopy/rectoscopy was performed on four (30.7%) patients and revealed no extra pathology. The average pregnancy duration was 28 (8-40) weeks. Nine (69.2%) patients had only complicated hemorrhoid while 4 (30.7%) had fissure in ano co-existing with the hemorrhoidal disease. Anal fissure was noted during the surgery in 3 patients (pain and hemorrhoidal prolapse rendered the pre-surgery physical examination inadequate) and before surgery in one patient. Only hemorrhoidectomy (Milligan-Morgan or Ferguson) was performed on 9 (69.2%), hemorrhoidectomy and sphincterotomy on 2 (15.3%) patients, hemorrhoidopexy by Longo procedure on 1 (7.6%) patient while excision of thrombus was performed on 1 (7.6%) patient. Average length of the

surgical procedure was 30 (10-35) minutes whereas duration of the hospital stay was on average 2 (1-3) days. The one patient who underwent Longo procedure developed ileus. The patient was re-examined under general anesthesia which revealed the cause of delayed bowel movement as partial stapling of the lumen. Dilatational digital rectal examination was done to release the stapled contralateral mucosa. Spontaneous passage of the stool occurred after the dilatation. During the early postoperative period, 11 (84.6%) patients complained of excessive pain while ileus was observed in 1 (7.6%) patient. No other early or late complications occurred.

## Discussion

Hemorrhoidal disease affects 4-40% of the population with equal prevalence among male and female. However, it is believed that there is a surge in prevalence among pregnant women reaching 85% in second and third trimesters<sup>4,7</sup>. Constipation, history of perianal disease, birth weight of the baby greater than 3000g, and prolonged labor contribute to the increased risk for postpartum hemorrhoidal disease<sup>8</sup>. Pregnancy is a physiological process that affects hemorrhoids. Constipation and hormonal venous dilations contribute to the high rates of hemorrhoidal disease that reach 38% during pregnancy<sup>9</sup>. In our study the rate of surgical intervention for hemorrhoidal disease in pregnant women was 17.8%. In comparison with literature, this rate is above the reported general population figures for hemorrhoid surgery carried out at other centers during pregnancy while the total number of the patients (male and female) who received surgery for hemorrhoidal disease is relatively low. We attribute this discrepancy to the fact that our center is a regional referral hospital.

Pregnancy is a process that causes formation of hemorrhoids or exacerbates symptoms of pre-existing hemorrhoidal disease<sup>10</sup>. Pressure exerted on the vasculature by growing uterus and relaxation effects of the progesterone hormone on the smooth muscles contribute to the increased hemorrhoidal disease during pregnancy. Moreover, relaxation of the intestinal muscles caused by the hormones leads to reduced bowel movements and constipation in pregnancy. Pregnancy related vomiting and fluid loss lead to hard stool formation that causes straining when passing stool, resulting in prolapsed and complicated hemorrhoids. Besides causing hemorrhoidal disease, constipation complicates hemorrhoidal disease and exacerbates symptoms together with other contributing factors. Furthermore, pushing and straining during labor worsen the clinical conditions and result in prolonged symptoms after delivery<sup>11</sup>.

The clinical symptoms and the signs of the disease are similar with those of non-pregnant population. Painless red per rectum bleed, prolapse that becomes manifest with defecation, sneezing, coughing or walking, anal pruritis and chronic irritation caused by dampness, pain due to acute thrombosis or irreducible prolapse, feeling of perineal and anal engorgement, tenesmus and rectal discharge, and impaired bowel functions are some manifestations of the hemorrhoidal disease<sup>5</sup>.

Pregnancy and puerperium are the two most important factors that contribute to the symptomatic hemorrhoidal disease which is a very important anorectal region disorder. The symptoms of the hemorrhoidal disease are generally common in second and third trimesters and after delivery<sup>3</sup>. In our study 12 (92.3%) of the patients were in second and third trimesters. One patient received surgical intervention for acute hemorrhoidal disease during

the first trimester. This patient had a 10 year prior history of hemorrhoidal disease.

The aim of hemorrhoidal disease treatment during pregnancy is to alleviate acute and chronic symptoms, prolong period between attacks, and protect perineal region. Any medical or surgical treatment planned should pose no harm to the mother and the fetus and should at the very least relieve the symptoms the patient until the end of the puerperium.

During pregnancy, the treatment is primarily geared to manage the symptoms, especially to relieve pain. Non-surgical treatment modalities are dietary changes, use of drugs that regulate bowel movements, and use of local therapy and phlebotonic drugs (drugs used in venous insufficiency that target microcirculation to reduce capillary fragility). In most cases, the symptoms spontaneously taper off or completely disappear after delivery. For this reason, surgery for hemorrhoidal disease which is not acute, should be postponed till after delivery in order to protect the mother and fetus. Symptoms of the internal hemorrhoids mostly respond to medical treatment. In the absence of thrombosis surgical treatment for external hemorrhoids should also be postponed until the delivery.

Failure of medical and conservative treatment is an indication for surgical intervention. Because of increased potential risk from surgery, surgeons shy away from operating on pregnant women even when the symptoms like pain persist despite medical/conservative treatment<sup>5</sup>. Surgical intervention can cause bleeding that carries a risk of hypotension (3.3-6.7%) for the mother and the fetus<sup>12</sup>. Moreover, sphincterotomy procedure performed with or without hemorrhoidectomy may induce labor or cause intractable wounds. Taking these risks into account, conservative/medical therapy should be preferred. In our study the 13 patients had no postoperative bleeding complications while also the 2

sphincterotomy patients had no complications of labor induction or problems of wound healing.

If the patient has ulceration, profuse bleeding, anal fissure or fistule accompanying prominently prolapsed hemorrhoids and is not responding to medical/conservative treatment hemorrhoidectomy is a more effective option to manage the disease. But, with the use of adequate and precise medical therapy surgery is rarely necessary. Hemorrhoidectomy is necessary in external hemorrhoids with recurrent thrombosis or internal hemorrhoids that irreducibly prolapse and is not responsive to band ligation or are persistently bleeding. Hemorrhoidectomy is performed under general anesthesia and may require in-patient treatment. Thrombosed external or prolapsed internal hemorrhoid may require surgery. During hemorrhoidectomy only symptomatic hemorrhoids should be excised to avoid unnecessary risk to the mother and the fetus. In our study one patient had hemorrhoid excision for thrombosed external hemorrhoid. The patient had no complications.

Pain, urinary retention and hemorrhage are most important early complications encountered after hemorrhoidectomy while hemorrhage, anal stenosis and incontinence are late complications<sup>13-15</sup>. In our study 11 patients (13 patients, 11 hemorrhoidectomies, 1 hemorrhoidopexy and 1 thrombectomy) who had hemorrhoidectomy (Milligan-Morgan or Ferguson) experienced early postoperative pain for an average of 4 (2-7) days. This was attributed to the fact that most patients had advanced disease with severe complications. Hemorrhoidopexy technique has gained popularity over the years as an alternative that reduces postoperative pain and increases patient satisfaction<sup>16</sup>. The proposed theoretical advantages of this technique over conventional methods are less pain as the surgical site is away from the anoderm rich in pain

receptors, hence shorter hospital stay. Even though early studies have fronted this technique as advantageous because of less postoperative pain and high patient satisfaction rates, in recent years application of Cochrane methodology to assess the data have shown that the technique is not as effective as fronted and has high rates of recurrence, increased risk of rectal prolapse and increased hemorrhoidal disease symptoms<sup>17-19</sup>. The single hemorrhoidectomy patient in our study complained of severe pain that subsided after postoperative day 2. But, that patient also had a rare complication of contralateral mucosa being stapled together during surgery and subsequent ileus. The patient was re-examined under anesthesia on postoperative day 2 during which digital rectal exam was performed to release the staples and dilate the canal. After the procedure unhindered passage of the stool was observed. The patient was discharged the following day and the follow-up was unremarkable. The single thrombectomy patient had no complaint of pain. In total 11 (84.6%) patients had complaints of pain as early complication, while 1 (7.6%) developed ileus. We did not observe other early or late procedure-associated complications. There is a known standard treatment algorithm for hemorrhoidal disease which is common in the society. However, in special conditions like pregnancy where surgery carries potential risks for the mother and the fetus, this standard algorithm can be altered. Because of the potential surgical risks, most clinics insist on medical/conservative treatment to the last tolerable point (when the hemorrhoids thrombose, intractably prolapse and show ulcerations or necrosis). Surgeons are mostly caught in a thin sensitive line between medical and social implications of the complicated hemorrhoidal disease and mothers' genuine worries, psychological and emotional processes when faced with surgery. Because of this, by the time those mothers present for

the surgery as a last resort, they would have gone from doctor to doctor and tried all conservative and alternative therapy means. The fact that the 13 patients in this study agreed and consented to the surgery in the face of the risks that anesthesia poses to the fetus and themselves, is a clear indication that the condition of their hemorrhoidal disease is intolerable. The firstline therapy for hemorrhoidal disease during pregnancy should be medical/conservative therapy. But for the patients presenting with acute hemorrhoidal disease, surgical intervention can be applied with minimal risk of complications at centers with adequate surgical, anesthetic and technical capabilities.

### **Details of ethics approval**

This study was approved by Baskent University Institutional Review Board (Project no: KA 18/101) and supported by Baskent University Research Fund.

### **Declaration of interest:**

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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