

Hemorrhoidal Artery Ligation for Patients with Bleeding Tendencies: Peri-operative Outcomes

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Abstract

Background: Bleeding hemorrhoids in patients with bleeding tendencies may be very harmful and fatal. Hemorrhoidectomy may cause further bleeding from surgical wound. In this situation, Doppler-guided hemorrhoidal artery ligation (DGHAL) seems a better choice, because this technique occludes the feeding arteries of hemorrhoids under Doppler guidance without any surgical wound. We examined the effectiveness of DGHAL to control bleeding in this group of patients.

Methods: Patients diagnosed with Hemorrhoids with bleeding tendencies who were treated with DGHAL during January 2008 to December 2014 were included in this study. The peri-operative outcomes were reviewed.

Results: From the data records, we obtained 11 patients who had bleeding tendencies undergoing DGHAL for hemorrhoids. At one month post DGHAL, only one patient had occasional spotting which spontaneously resolved without any intervention.

Conclusions: DGHAL is an effective alternative treatment for bleeding hemorrhoid. Without tissue resection and under Doppler guidance, it is of benefit for bleeding hemorrhoids in patients with bleeding tendencies.

Keywords: Massive bleeding hemorrhoid, Bleeding tendencies, Doppler-guided hemorrhoidal artery ligation

INTRODUCTION

Bleeding hemorrhoids in patients with bleeding tendencies may be a life-threatening condition because of massive hemorrhage¹. At present, there is no widely accepted safe and effective therapy for this group of patients. Morinaga et al.² introduced a Doppler-guided hemorrhoidal artery ligation (DGHAL) procedure for the treatment of hemorrhoids. Without any tissue

resection, this technique may lessen postoperative bleeding and be beneficial to patients with bleeding risks.

The aim of this study was to determine the peri-operative outcomes of bleeding hemorrhoids which were treated with DGHAL in our institution, particularly in patients who have bleeding tendencies.

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MATERIALS AND METHODS

Data of patients with hemorrhoids who underwent DGHAL from January 2008 to December 2014 were extracted for this study. Patients with bleeding risks were defined as patients with any of the following conditions: thrombocytopenia, platelet dysfunction, coagulopathy, disorders which cause abnormal hemostasis (such as renal failure, cirrhosis, etc.), or exposure to anti-platelet or anti-coagulant within two weeks prior to surgery. Their medical records were reviewed. Patients were treated on an in-patient or day-care surgery basis. For in-patients, both admission forms and out-patient forms were reviewed. Patients whose medical records were lost or inadequately recorded were excluded.

The extracted data included age, sex, underlying illnesses such as renal or hepatic disorders, the use of anti-platelet or anti-coagulant agents, grade of internal hemorrhoids, presence of external hemorrhoid, and clinical presentation of hemorrhoids. Early and 30-day events including postoperative bleeding, blood components transfused, and occurrence of recurrent hemorrhoids in patients with bleeding tendency were analyzed.

Most of patients underwent surgery on a day-care basis. Bowel preparation and antibiotic prophylaxis were not provided. The surgery was performed with patients in the prone position. Local anesthesia (1.0% Lidocaine with adrenaline) was used in patients who were still on anti-platelets or anti-coagulants. Regional anesthesia was used in patients who had stopped anti-platelets or anti-coagulants one to two weeks prior to surgery. Doppler-probe-equipped proctoscopy was used in all cases. Flow signals of hemorrhoidal arteries were detected at 1 to 2 cm above the dentate line. All submucosal arteries were sutured with 2-0 absorbable sutures, the success of which was confirmed by the absence of the Doppler signal. Care must be taken not to tie the knots too tight, which might lead to further bleeding.

Postoperative care included pain control with acetaminophen (paracetamol) and/or a COX-2 inhibitor, and the use of bulk-forming stool softeners. All in-patient cases were discharged on the day following surgery. All patients were followed as outpatients at 1 month after surgery, and monthly thereafter in cases with residual symptoms or complications which need to be managed.

RESULTS

There were 59 patients who underwent DGHAL during the study period. The mean age was 51 years (range 24 to 78 years). Forty cases were male (68%). Forty patients (68%) underwent DGHAL on a day-care basis. The rest were treated as in-patients.

Postoperative bleeding was found in 7 patients (12%). Only two patients (both without any bleeding risks) had significant bleeding complications: one patient presented with rectal bleeding from suture site on post-operative day 2, which needed endoscopic hemostasis, and one patient had infected hematoma at the suture site on post-operative day 7, which needed clot removal and surgical hemostasis. The remaining five patients had only occasional bloody spotting, of whom one had bleeding risk. None of the seven bleeding patients needed postoperative transfusion. All bleeding stopped within the first month after surgery.

Of the 59 patients, 11 patients (19%) had bleeding tendencies. Their risks included exposure to anti-platelets (aspirin and clopidogrel) or anti-coagulant (warfarin), liver cirrhosis, end-stage renal disease, and thrombocytopenia secondary to myelodysplastic syndrome (Table 1). Of the 11 patients at risk, only 1 had occasional spotting during the first month after surgery. The bleeding in this patient stopped spontaneously without any intervention. There was no recurrent symptoms (prolapsing or bleeding) at month 1 after surgery.

DISCUSSION

The "vascular" theory of arterial overflow was recently proposed to explain the pathogenesis of hemorrhoids, based on many studies³⁻⁶. Morinaga et al. first introduced the method of hemorrhoidal artery ligation with aid of doppler-equipped proctoscope². There have been many modifications of the technique⁷⁻¹⁰, applying similar concepts. These include the reduction of arterial flow into the hemorrhoidal plexus, without resecting the hemorrhoidal tissues. Hence, DGHAL should be associated with less postoperative pain and bleeding, compared to conventional hemorrhoidectomies.

Many recent studies¹¹⁻²² reported early success rates up to 70%, but with high recurrence rate of symptoms (9 to 27%) after a follow-up of up to 5 years.

Table 1 Patients with bleeding tendencies underwent DGHAL

Case number	Sex	Age	Pro-lapse	Bleeding	Underlying conditions	Anti-platelet/ Anti-coagulant	Hb/Hct/plt	PT(sec), INR, aPTT(sec)
1	M	68	Grade 3	Yes	Myelodysplastic syndrome	No	7.7, 23.4, 10000	13.0, 1.1, 27.0
2	F	67	Grade 2	Yes	Alcoholic cirrhosis Child B, HT	No	8.6, 27.0, 127000	17.3, 1.56, 32.4
3	M	78	Grade 3	No	HT, DM, ischemic stroke, aortic dissection, prostatic cancer s/p radiation, radiation proctitis	Clopidogrel	N/A	N/A
4	M	56	Grade 2	No	HT, DM, alcoholic cirrhosis Child C	No	12.8, 36.1, 33000	15.2, 1.33, 28.8
5	F	75	No	Yes	HT, DM, stroke, OA	Aspirin	13.5, 40.3, 304000	11.6, 0.97, 25.6
6	F	56	Grade 3	Yes	HCV cirrhosis Child B	No	11.4, 36.6, 117000	10, N/A, N/A
7	F	62	Grade 3	Yes	HT, DM, Cervical cancer s/p radiotherapy	Aspirin	N/A	N/A
8	M	45	No	Yes	HT, AF, severe mitral valve regurgitation s/p valve replacement, COPD	Warfarin	N/A	N/A
9	M	56	No	Yes	CAD	Aspirin	N/A	N/A
10	M	77	Grade 2	Yes	HT, DM, stroke, CAD s/p CABG	Clopidogrel	N/A	N/A
11	M	38	Grade 3	Yes	ESRD, Cirrhosis Child C	Clopidogrel	N/A	N/A

AF, Atrial fibrillation; aPTT, activated partial thromboplastin time; CAD, Coronary artery disease; CABG, Coronary artery bypass grafting; COPD, Chronic obstructive pulmonary disease; DM, Diabetes mellitus; ESRD, End-stage renal disease; Hb, hemoglobin; Hct, hematocrit; HCV, Hepatitis C virus; HT, Hypertension; INR, international normalized ratio; OA, osteoarthritis; plt, platelet count; PT, prothrombin time; sec, second(s); s/p, status post

For bleeding hemorrhoids, DGHAL seemed useful for hemostasis. Postoperative bleeding complications included hematoma, persistent bleeding, and recurrent bleeding. Persistent bleeding can be considered as either a complication or treatment failure. Its incidence was between 1 to 21% during the first few months. Persistent bleeding was usually minor, and only 1 to 3% required surgical hemostasis. After 1 to 5 years of follow-up, the incidence of bleeding complications was 2 to 9%, and some were considered recurrent symptoms.

Bleeding hemorrhoids in patients with bleeding risks can be massive and life-threatening¹, but the optimum treatment for this condition is unknown. Cavazzoni et al.²³, reported the first study of the effectiveness of DGHAL for arresting persistent hemorrhoidal bleeding in the emergency setting. In their study, 11 of 68 patients with severe bleeding continued bleeding after tampon application, and underwent emergent DGHAL. Seven of these took anti-platelets or anti-coagulants (aspirin, clopidogrel, or warfarin). All bleeding stopped completely with

DGHAL. There were no major complications. None received any blood transfusion. There was no persistent or recurrent bleeding at 30 and 90 days after the procedure.

The present study found DGHAL to be technically simple, safe and effective in controlling bleeding hemorrhoids. Postoperative bleeding complications occurred in 12% (7/59) of patients. This was comparable to the reported postoperative bleeding complications between 1 to 21% from other studies¹¹⁻²². Only two patients who did not have any bleeding risk required endoscopic or surgical hemostasis.

In the subgroup of patients with bleeding tendencies, only one had a postoperative bleeding complication, which was minor, within one month after DGHAL. None suffered from other major or minor complications. The hospital stay for these patients was between one to two days. This demonstrated the effectiveness of the procedure in patients at risk. Thus, we recommend that DGHAL be used for bleeding hemorrhoids in patients with bleeding tendencies.

Besides being a retrospective study, the limitations of the present study included a small sample size and lack of long-term outcomes.

CONCLUSION

DGHAL is an effective alternative treatment for bleeding hemorrhoids. Without tissue resection, it is of special value in patients with bleeding risks. Our series confirmed the effectiveness and safety of this procedure in controlling bleeding hemorrhoids in high risk patients.

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บทคัดย่อ การเย็บผูกหลอดเลือด hemorrhoidal artery ในผู้ป่วยที่มีภาวะเลือดออกง่ายหยุดยากที่มีเลือดออกจากริดสีดวง: ผลการรักษาหลังผ่าตัด

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หน่วยศัลยกรรมลำไส้ใหญ่และทวารหนัก ภาควิชาศัลยศาสตร์ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
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ความเป็นมา: ภาวะเลือดออกจากริดสีดวงในผู้ป่วยที่มีปัญหาเลือดออกง่ายหยุดยากเป็นภาวะที่อันตรายมากจนอาจถึงแก่ชีวิต การผ่าตัดริดสีดวงเสี่ยงต่อเลือดออกจากแผลผ่าตัดในสถานการณนี้ การผูกหลอดเลือดริดสีดวงโดยใช้คอปเปิ้ลอร์ช่วยหาคำแหน่งหลอดเลือด (DGHAL) ดูเป็นทางเลือกที่ดี เพราะวิธีนี้สามารถห้ามเลือดโดยไม่ก่อให้เกิดแผล การศึกษานี้เพื่อทราบประสิทธิภาพในการช่วยห้ามเลือดในผู้ป่วยกลุ่มดังกล่าว

วิธีการศึกษา: ผู้วิจัยรวบรวมผู้ป่วยริดสีดวงที่มีภาวะเลือดออกง่ายหยุดยากที่รักษาด้วยวิธี DGHAL ระหว่างเดือนมกราคม 2008 ถึงธันวาคม 2014 และติดตามผลการรักษาด้วยวิธีข้างต้น

ผลการศึกษา: จากข้อมูลเวชระเบียน ผู้วิจัยพบผู้ป่วยที่เข้าเกณฑ์ข้างต้น 11 ราย ซึ่งภายหลังจากการผ่าตัดหนึ่งเดือน มีเพียงผู้ป่วยรายเดียวที่มีเลือดออกเพียงเล็กน้อยและหยุดไปได้เองโดยไม่ต้องรักษาเพิ่มเติมใด ๆ

สรุป: DGHAL เป็นวิธีรักษาภาวะเลือดออกจากริดสีดวงที่มีประสิทธิภาพในกลุ่มผู้ป่วยที่มีภาวะเลือดออกง่ายหยุดยาก เนื่องจากสามารถเย็บผูกหลอดเลือดริดสีดวงเพื่อห้ามเลือดได้โดยไม่ทำให้เกิดแผล
