Original Article

Iraqi National Journal of Medicine Jan 2021, vol. 3, Issue 1.

Doppler-Guided Hemorrhoid Artery Ligation with Recto-Anal Repair Outcome on Female Patients in Basra: Assessment Study

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ABSTRACT

Background: Hemorrhoidal disease is a common morbidity seen by general surgery clinics. Transanal Doppler guided (DG) hemorrhoidal artery ligation (HAL) with rectoanal repair (RAR) has been invented as a new treatment option. HAL-RAR was associated with mild to moderate postoperative complications in the literatures; and considered easy, safe, mostly painless procedure with very good results in treating hemorrhoids.

Objective: This study was conducted to evaluate the outcome of using DG-HAL-RAR procedure through documenting postoperative complications during a median follow-up period of 18 months.

Method: The study included 151 women presented with hemorrhoids in Basra, operated upon using the DG-HAL-RAR and complications assessed.

Results: The patients' mean age was 40–99 years. Most of the hemorrhoids were internal plus external (86.1%), of third degree (68.2%) and non-recurrent (90.1%). The surgical management needed an average of 6 ligations and 3 mucopexies. During the follow up periods, the most frequent complication was early bleeding, while the least was hemorrhoids recurrence.

Discussion: During the follow up period, the postoperative complications were early bleeding, early pain, urine retention, late bleeding, anal stenosis, and hemorrhoids recurrence, the incidence of which were similar or close to the incidence of documented by other studies, except for early bleeding which was much higher than in our study. Some complications, reported by other studies,were not reported in this study.

Conclusions: DG-HAL-RAR procedure can be used effectively and safely in second or third degree hemorrhoids.

Keywords: Hemorrhoidectomy, Anal surgery, DG-HAL-RAR, Basra

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Disclaimer: The authors have no conflict of interest.

DOI: https://doi.org/10.37319/iqnjm.3.1.8

Received: 2 Aug 2020 Accepted: 15 Dec 2020 Published online: 15 Jan 2021

INTRODUCTION

Hemorrhoidal disease or hemorrhoids disease is considered one of the commonest causes among patients visiting general surgery clinics. It is prevalent in about 4.4 percent of the population[1, 2]. As long as the management of hemorrhoids includes surgical intervention[1, 2], it is rational to expect intraoperative and postoperative complications, mostly postoperative pain [3]. This has necessitated inventing procedures to try to reduce the severity of this pain. The procedures used to achieve this objective include rubber band ligation and sclerotherapy [4]. The most recent in the series of these has been the transanal Doppler guided (DG) hemorrhoidal artery ligation (HAL) [5] with or without rectoanal repair (RAR), a minimally invasive treatment choice [6]. A method of hemorrhoidal disease surgical treatment, which involves hemorrhoidal artery ligation, guided by a Doppler flow meter, aimed at preserving the hemorrhoidal plexuses and mucosa. To deal with mucosal prolaps, a modification of selective hemorrhoidal artery ligation, recto-anal repair combines the DG-HAL with pleating the prolapsed rectal mucosa, via a special proctoscope. The procedure ends with reducing Hemorrhoid size by ligating the arterial supply and restoring the anatomical position of prolapsed mucosa [7], which was found to have a positive effect on anal pressure(whether resting or squeeze)and lack of postoperative fecal incontinence [8]. This procedure was documented to be able to achieve desirable outcomes including a low incidence rate of mild to moderate complications like acute postoperative pain (9% in the short-term and 4% in the long-term) [9]. It has been seen as easy to master, safe, mostly painless procedure with satisfying outcome in the control of hemorrhoidal symptoms [10]and suitable for a day case surgery [6]. More, it was recommended as an effective first-choice approach to treat hemorrhoids[11], with a high patients satisfaction rate[12].

This study was carried out to assess the outcome of using DG-HAL-RAR procedure in some of Basra hospitals by documenting the incidence of postoperative complications during a median follow up period of 18 months.

PATIENTS AND METHOD

This prospective study was conducted from the 1st of August 2014 through 31 December 2017. It included all the151 women patients on accrual, who complained of hemorrhoids in Basra Province, consulted the main researcher, and consented to be operated on using the DG-HAL-RAR procedure when a surgical intervention was indicated.

The variables studied were age, chief complaint, characteristic of hemorrhoids, procedure, follow up duration, and the development of complications. To achieve this purpose, a special form was designed to collect data.

The procedure

Preoperatively, all cases were assessed by history, physical and proctoscopic examination to make the diagnosis and determine the type and degree of hemorrhoids. Colonoscopy was done only for suspected cases with atypical symptoms to exclude possible underlying malignancy and it was avoided in patients with associated anal fissure.

The procedure performed under general or spinal anesthesia while the patient was

being in lithotomy position. No tissue excision was performed. Lateral sphincterotmy was added for patients with associated anal fissures. The procedure was considered a day case and the patients were discharged home in a few hours after ensuring acceptable control of pain and absence of immediate complications.

Postoperatively, early and late complications were assessed according to patient periodic questioning and physical examination. The severity of postoperative pain was assessed by the analgesic requirement for relieving that pain, following the PMI (0 = no analgesia, 1 = non-opioid analgesia, 2 = a mild opioid, 3 = a strong opioid)[13]. The bleeding was documented, if any, even few drops that normally appear in early postoperative days and more severe bleeding usually occurred late after the fifth day, which indicate infection.

Informed consent was obtained from the patients to use their relevant data in the study, stressing the confidentiality principle.

Checking the quality of data included checking the filling-in the Study Form by one researcher. This was followed by cross checking between the researchers. Finally, a checking was done for the data entry process by comparing the digital data with the paper ones before making the statistical analysis.

The software package used for statistical analysis was SPSS 20. Percentages were used to present frequencies and Chi^2 test to investigate relationships.

RESULTS

The mean patients' age in years assessed with SD was 40.99 SD11.19 years, with a minimum age of 18 years and a maximum of 70 years.

It is clear from Table (1) that the most frequent presenting symptom was pain and the least was discharge. When examined, most of the hemorrhoids types were internal plus external, recurrent, and of third degree (Table 2). From Table (3), it can be noticed that the surgical management of patients involved an equal chance of conducting DG-HAL-RAR with lateral sphincteretomy or without lateral sphincteretomy, and required medians of 6 ligations, 3 mucopexies, and 18 months follow up duration. During the follow up periods, the most frequent postoperative complication was early bleeding (of which none required any further surgical intervention, admission, or blood transfusion and treated as an outpatient), while the least was the recurrence of hemorrhoids (Table 4). When these complications were tested, using student t-test for any relationship to the number of sutures or mucopexies performed, no significant statistical association could be elicited. However, when the possibility of developing at least one of the documented complications was tested for the association with the degree of hemorrhoids, a significant statistical association was found (Table 5).

Table (1): Distribution of the presenting hemorrhoids-associated clinical features among the study patients

Complaint	Frequency	Percent
Pain	150	99.3
Bleeding	132	87.4
Itching	52	34.4
Discharge	9	6.0

Table (2): Some of the characteristics of hemorrhoids diagnosed during the study

Characteristic		Frequency	Percent
Type	Internal	21	13.9
	Both	130	86.1
Degree	Second	20	13.2
	Third	103	68.2
	Fourth	28	18.5
Recurrent	Yes	15	9.9
	No	136	90.1
Total		151	100.0

Table (3): Some of the characteristics of DG-HAL-RAR procedure used in the study

Procedure	Frequency	Percent
With lateral sphincteretomy	74	49.0
Without lateral sphincteretomy	77	51.0
Ligations number mean	6	------
Mucopexies number median	3	------
Follow up duration (month) median	18	------
Total	151	100.0

Table (4): Frequency of postoperative complications developed after DG-HAL-RAR in the study

Complication	Frequency	Percent
Early bleeding	76	50.3
Early pain	9	6.0
Urine retention	6	4.0
Late bleeding	4	2.6
Anal stenosis	3	2.0
Recurrence of hemorrhoids	3	2.0

Table (5): Association between the degree of hemorrhoids and the development of at least one postoperative complication after DG-HAL-RAR developed in the study.

Degree	Development of at least one complication		Total	Significance
	Present	Absent		
Second	5	15	20	Chi2= 22.25 P-value= 0.0001
	25.0%	75.0%	100.0%	
Third	49	54	103	
	47.6%	52.4%	100.0%	
Fourth	25	3	28	
	89.3%	10.7%	100.0%	
Total	79	72	151	
	52.3%	47.7%	100.0%	

DISCUSSION

Several studies were conducted worldwide to assess the DG-HAL-RAR procedure on different populations from different approaches. This motivated the researchers of this study to conduct such an assessment. A limitation of this research is that the study population involved the patients who consulted the main researcher only. However, during the study period, few surgeons in Basra were using the procedure of intention and the study population represents a considerable proportion of the female patients who suffer from hemorrhoids in the Province.

The mean age with SD of patients with the minimum and maximum limits are close to those documented in other researches among different populations, like Polish patients (56 (29–70) years)[8] and South Korean ones (51.7 SD13.2 (22-87) years) [14]. This may refer to that the Basra/ Iraqi hemorrhoids patients have similar age of presentation and illness behavior regarding consulting the doctor to patients from other countries. The presentation involved the classical presenting clinical features mentioned in the textbooks [15].When examined, most of the hemorrhoids were internal plus external, recurrent, and of third degree.

The mean ligations was 6 and median mucopexies 3, which are close to or slightly higher than in other studies [8, 11, 14], although, some studies needed more ligations [16].

Previous studies followed up the patients for different periods, ranging from 11.1–36 months [11]. The follow up duration of this study, 18 months, lies within this range. During this period, the proportion of patients who complained of at least one postoperative complication was 52.3%. The most frequent postoperative complication was early bleeding, while the least was the recurrence of hemorrhoids. Generally, it is reported that DG-HAL-RAR is a procedure with very few early complications observed in 3.7% of the patients only and almost no late complications [7,8,11,14,17].The highest percentage of early postoperative complications reported was in9% of patients, although none of them complained of a serious complication [18].

Early bleeding in the current study was seen in more than half of the patients, which is

much higher (about 6–14 times) than what was documented in other studies [7, 8, 10, 11, 14], even though, some studies reported zero postoperative early bleeding [19]. This can because the methodology involved asking the participants during the follow up period to report bleeding whatever small amount it is. Accordingly, in all patients who mentioned bleeding, it was only a few spots that appear normally but were considered bleeding by the patients. In general, bleeding is considered normal when seen in the first post-operative bowel movement [20]. However, it was reported by other studies that postoperative early bleeding resolves earlier in the DG-HAL-RAR than in other hemorrhoids management methods [21].

Regarding late bleeding, the study follow-up documented 2.6% of patients who complained. This percentage is relatively lower than what was seen in other studies [12, 22]. A study, which showed, after one month follow-up, bleeding in 4.1% of the patients documented that when those were examined by anoscopy, in half of them the bleeding was caused by acute anal fissure, which is not related to bleeding from hemorrhoids; and the percentage decreased to 2% after 3 postoperative months [14]. However, there are other studies that did not report any late postoperative bleeding [6, 8].

This study documented, during the whole follow up period, postoperative pain in 6% of the patients, which was of less severity than that following conventional procedures, easily managed by non-steroidal anti-inflammatory medicines, and similar to the findings of other studies [6, 8, 11, 12] or a little bit higher [23].But in general, studies agree that it can be controlled by simple analgesia [23, 24]. That is why DG-HAL-RAR was recommended to be a procedure to treat most hemorrhoids, with no significant pain [25] and even no need for analgesics after the surgery day in a considerable proportion of patients [26].

Urine retention and anal stenosis documented in this study are slightly higher than in other studies [12]. Recurrence of symptoms and/or hemorrhoids is a little bit lower than these studies (3.3–25%) [6, 8, 10-12], when it was mostly associated with the third degree [16].

It is logical to find that the possibility of developing at least one complication is significantly associated with preoperative hemorrhoids severity. However, it was reported that when a large number of management modalities of hemorrhoids are considered, the safety record of DG-HAL-RAR is still proofing and not associated with any major complication [27, 28]. However, some researchers documented better outcomes when the DG-HAL-RAR is combined to laser destruction [29]; while, others found that Doppler guidance does not have advantage over manual hemorrhoidal artery detection [30].

Other complications reported by other studies, include itching, necrosis of a hemorrhoidal cushion, tenesmus, skin tag, soiling, fissure, hemorrhoid thrombosis and/or proctitis[6–8, 10–14, 31], were not reported in our study. This is probably either because, simply, they had not happened or were somild that the patients ignored them when questioned during follow up.

CONCLUSION AND RECOMMENDATION

Trends of hemorrhoid management are directed towards the minimally invasive and tissue conserving surgical techniques and the extent to which most hemorrhoids of first degree can be treated conservatively. While the fourth degree is associated with a high chance of complication, we recommend transanal Doppler-guided he morrhoidal artery ligation with rectoanal repair for hemorrhoids of the second or third degree.

Postoperatively, the transanal Doppler guided hemorrhoidal artery ligation with rectoanal repair is a comfortable procedure for the patient as well as the surgeon. Since no tissue is excised, no serious early complications such as severe bleeding or severe pain can occur. Moreover, no serious late complications, especially serious stenosis, will develop.

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