Doppler-Guided Hemorrhoidal Artery Ligation

Thesis
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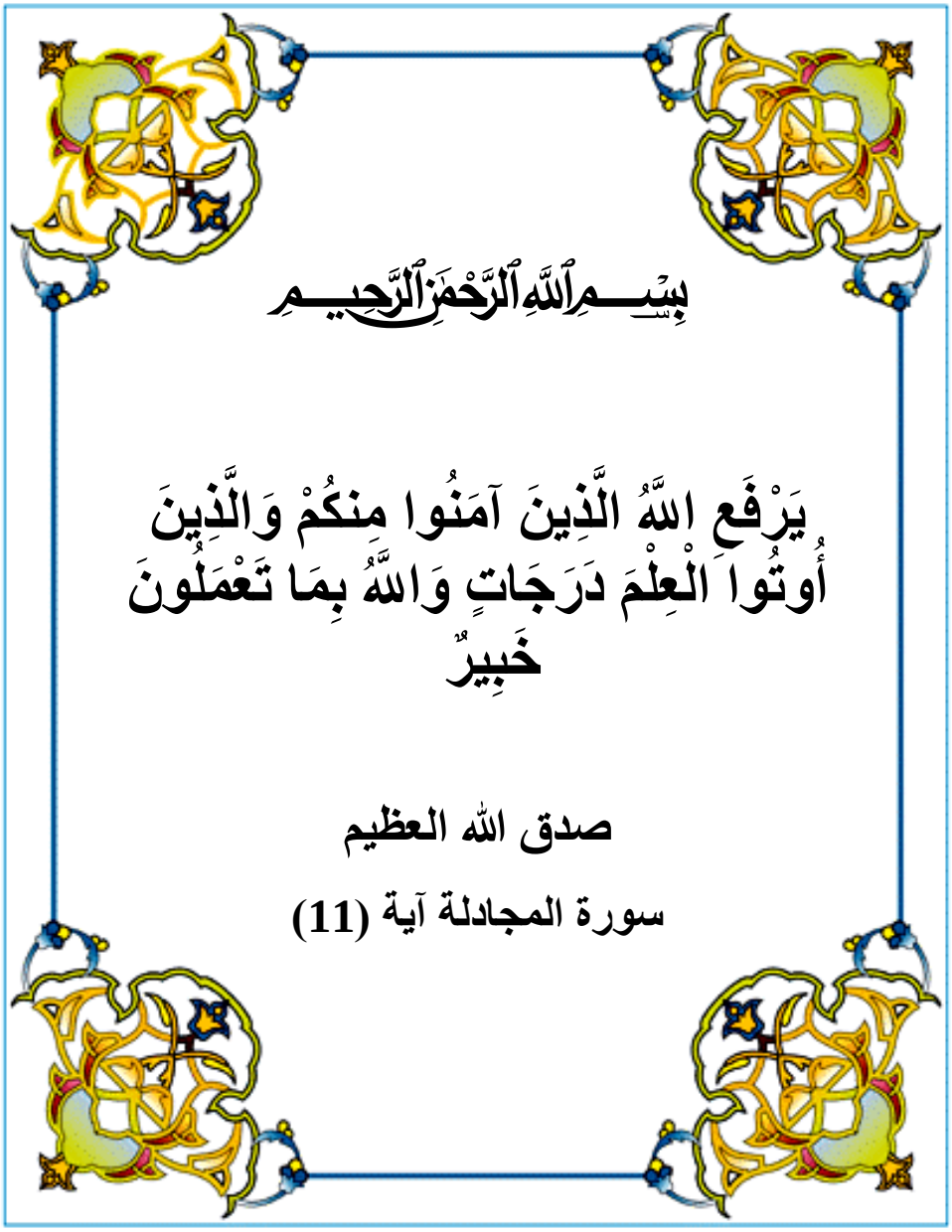

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

يَرْفَعِ اللَّهُ الَّذِينَ آمَنُوا مِنكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ وَاللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ

صدق الله العظيم

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Abstract

BACKGROUND: Doppler-guided hemorrhoidal artery ligation is a minimally invasive technique for the treatment of symptomatic hemorrhoids that has been applied successfully for grade II and III hemorrhoids but is less effective for grade IV hemorrhoids. **OBJECTIVE**: The evaluation of Doppler-guided hemorrhoid artery ligation as operative treatment option for the treatment of hemorrhoids. **DESIGN**: Prospective observational study. **SETTING:** Ain-shams University hospitals. **PATIENTS**: Thirty consecutive patients with grade II and III hemorrhoids treated from February 2012 to June 2014. **INTERVENTION**: Hemorrhoidal artery ligation. **MAIN OUTCOME MEASUR**ES: Operating time, number of ligations, and postoperative symptoms were recorded. Pain was graded on a visual analog scale. Follow-up was at one week, 1, 3, 6 and 12 months after surgery. **RESULTS**: A total of 30 consecutive patients (12 women, 18 men) with grade II and III hemorrhoids were included. Preoperative *Symptoms* were *fresh bleeding related to defecation (90%), prolapse (100%), prurities (17%) and discharge (10%).* The mean operative time was *30.0 min.* ±14. Minutes (range, *20-40)* minutes, with a mean of 8 (range, 6-10) ligations placed per patient. **COMPLICATIONS:** Intraoperative *bleeding* in 2 patients, 12 patients developed postoperative complications: One case of Postoperative *bleeding*, One case of Postoperative discharge, urine retention of 9 patients. Recurrence was observed in 1 patient (3%), hospital stay was *mean ± SD = 28.8 h.* ± 8.4h, *(range 24-36 hours),* with a mean follow-up of 11 (range, 6-16) months. **CONCLUSION**: Doppler-guided hemorrhoidal artery ligation is safe, easy to perform, and should be considered as an effective operative option for the treatment of grade II and III hemorrhoids.

Keywords: Doppler-guided Hemorrhoidal artery ligation (DGHAL) = Non-Excisional Hemorrhidectomy = Transanal Hemorrhoidal Dearterlization = hemorrhoidal artery ligation under control of Doppler.

List of Abbreviations

ADLs	**:**	Activities of daily living
BC	**:**	Before Christ
Cms	**:**	Centimeters
CCR	**:**	Corpus cavernosum recti
Co	**:**	Company
CO2	**:**	Carbon dioxide
Corp	**:**	Corporation
E.C.G	**:**	Electrocardiography
EEA	**:**	End-to-end anastomosis
HAL	**:**	Hemorrhoidal Artery Ligation
HALO	**:**	Hemorrhoidal Artery Ligation Operation
HIV	**:**	Human immunodeficiency virus
Hrs	**:**	Hours
ICR	**:**	Infrared coagulator
IMV	**:**	Inferior mesenteric vein
GI	**:**	Gastrointestinal
kHz	**:**	kilohertz
KM	**:**	Kazumasa Morinaga
Liq	**:**	Liquid
LS	**:**	Ligasure
MM	**:**	Millimeters
Mm Hg	**:**	Millimeter of mercury
NANC	**:**	Non-adrenergic and non-cholinergic fibers
NaOH	**:**	Sodium hydroxide
ND/YG	**:**	Neodymium-doped yttrium aluminium garnet
N2	**:**	Nitrogen gas

N20	**:**	Nitrous oxide
NSAID	**:**	**Non steroidal anti- inflammatory drugs**
NS	**:**	Not specified
RBL	**:**	Rubber band ligation
RCT	**:**	Random controlled trial
RF	**:**	Radiofrequency
SRA	**:**	superior rectal artery
THD	**:**	Transanal Hemorrhoidal De-arterialization
TM	**:**	Trade Mark
V	**:**	Voltage
VAS	**:**	Visual analogue scale

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Introduction

Hemorrhoids affect between 4 and 36 percent of the population. The pathogenesis of this disease remains controversial but might be a conjunction of the two theories often discussed: the mechanical explanation in which the muscular fibroplastic supportive tissue of the hemorrhoidal plexus degenerates and the vascular explanation in which the arteriovenous shunts open, leading to dilation of the hemorrhoidal venous plexus. Based on this, several operative techniques have been used to correct or remove the sliding hemorrhoids **(*Faucheron*** and ***Gangner, 2008).***

By reducing the inflow, the plexus diminishes and the hemorrhoids shrink. This seems especially effective in Grade II and III hemorrhoids. The Doppler probe allows an accurate localization of all the arteries, which are individually ligated with figure-of-eight sutures. This serves to bunch up the mucosa, which results in a pulling-up of the prolapse while interrupting the blood supply. The hemorrhoidal artery ligation HAL technique results in minimal postoperative discomfort but no pain in

comparison with hemorrhoidectomy ***(Eugeny and Sergey, 2008).***

In 1995, a Japanese surgeon ***Kazumasa Morinaga*** reported a new technique for the treatment of hemorrhoids (HAL), which uses a specially designed proctoscope coupled with a Doppler transducer for identification and ligation of hemorrhoidal arteries. He designed a special instrument, which contained a Doppler transducer and a window, which permitted the surgeon to identify and ligate the hemorrhoidal arteries by placing a suture (stitch) around them. This is a simple maneuver, which produced prompt resolution of most of the hemorrhoidal symptoms of bleeding and protrusion ***(Scheyer et al., 2006).***

Doppler-guided ligation of the hemorrhoidal artery is a safe and effective alternative to hemorrhoidectomy and is associated with minimal discomfort and low risk of complications (***Felice et al., 2005).*** It reduces the need for conventional hemorrhoid surgery where rubber band ligation has been unsuccessful ***(Conaghan and Farouk, 2009).***

Doppler-guided hemorrhoidal artery ligation with rectoanal repair is easy to perform and should be considered as an effective option for the treatment of grade IV hemorrhoids (***Faucheron et al., 2011).*** Because the arteries carrying the blood inflow are ligated, internal