

**DOPPLER-GUIDED HEMORROIDAL ARTERY LIGATION (HAL) FOR THE
TREATMENT OF HEMORRIDS-RESULT IN 169 PATIENTS**

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Materials and methods

The author between October 2003 and September 2004 treated a total of 169 patients. There were 140(82,8%), males and 29(17,2%), females. The patients were of age from 23 to 74 years with a mean age of 43,12.

Table № 1

	AGE			
Valid	Minimum	Maximum	Mean	Std. Deviation
169	23	74	43,12	9,301

Table № 2

Age patients	Number patients	%
29	10	5,9
30-39	52	30,8
40-49	67	39,6
50-59	34	20,1
60-69	3	1,8
70-79	3	1,8
Total	169	100

Duration of disease

	Duration of disease				
Number	N	Minimum	Maximum	Mean	Std. Deviation
	169	2	25	8,69	5,236

The table № 3

Stage hemorrhoids disease

Stage hemorrhoid	Frequency	Percent
I stage	3	1,8
II stage	50	29,6
III stage	102	60,3
IV stage	14	8,3
	169	100

The table № 4 Accompanying pathology anal canal

The basic pathology	Accompanying pathology	frequency	percent
hemorroid	-	142	84,0
hemorroid	Fissure	21	12,4
hemorroid	Anal fistula	4	2,4
hemorroid	Hipertrophic prolapsed anal papillae	2	1,2
		169	100

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	,477	,000
N of Valid Cases		169	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	49,723	9	,000
Likelihood Ratio	22,455	9	,008
Linear-by-Linear Association	11,249	1	,001
N of Valid Cases	169		

a 11 cells (68,8 %) have expected count less than 5. The minimum expected count is,04.

The table № 5 Pathology internal hemorrhoid and anal canal

Pathology internal hemorrhoid and anal canal	Stage				Total
	I	II	III	IV	
Hemorrhoid		38	91	13	142
Hemorrhoid -anal fissure	1	11	8	1	21
Hemorrhoid - intersphincteric fistula	1	0	1		2
Hemorrhoid - Hipertrophic prolapsed anal papillae	1	1	2		4
Total	3	50	102	14	169

The table № 6 Symptoms disease

Symptoms of disease	Number patients	%
Bleeding	1	0,6
Prolapsed	19	11,2
Bleeding + prolapsed hemorrhoid + pain	15	8,9
Bleeding + prolapsed hemorrhoid	128	75,7
Bleeding +pain	6	3,6
Total	169	100

Thomson did grouping of the patients on the basis of stage of the disease on the basis of classification W. H. (1975). On the basis of the stage of disease the patients were grouped as shown

in Table № 3, 4 и 5. The main clinical symptom because of what patients consulted doctor was prolapsed of the hemorrhoid nodules and bleeding as shown in Table № 6.

The work was completed on apparatus of company AMI.

Preparation of the patient for operation:

Patients are prepared by having oral intake of fluids from midday before the procedure and giving them two "Microlax" enemas (Kabi Pharmacia AB) two hours before the procedure. The patient is placed in the left lateral position, the area is prepared by applying Xylocaine ointment generously to the perianal and anal region.

Anesthesia: premedication "Bral" 5,0 mg in a combination with Dimedroli, (Tavegili) 1,0 mg. 30 min to 1 hour before procedure. For prevention of a trauma mucous anal canal at introduction anoscop, local anesthesia was carried out. The combined interventions, it was carried out under local anesthesia in a combination with perisphincter blockade. Perisphincter anesthesia is executed 139 (82,2 %) Marcain (Bupivacaine) 0,25 % 4,0 in points 3,9,6 hours (in the anatomical lithotomic position), at 27 (16,0 %) patients was combined with sub dermal infiltration anesthesia. At patients with a low tone external sphincter, procedure was carried out without local anesthesia

Table № 7 Choice of anesthesia

Kind of anesthesia	абс.	%
Perisphincter anesthesia	139	82,2
Subdermal infiltration + in a combination with perisphincter anesthesia	27	16,0
Without local anesthesia	3	1,8
Total	169	100

Technique of anesthesia

Used standard position for anatomical lithotomic position. Before introduction anoscop blockade by solution Marcaini (Bupivacaine) 0,5 %-4,0 in points on 6 3 and 9 hours on a conditional dial, in for anatomical lithotomic position was carried out perisphincter anesthesia. It reached (achieved) a relaxation of muscles external sphincter. In those cases when, the tone of muscles external sphincter is weakened, anesthesia was not carried out (spent). The combined interventions, it was carried out (spent) under local anesthesia in a combination with perisphincter blockade. At 3 patients anesthesia was limited to processing anal areas and anal canal Xylocaine ointment

Technique of operation For performance of intervention used standard position for lithotomic position. Perianal skin and anal canal was processed by solution "Octenisept" (S*M, Germany). The head anoscop Moricorn were greased electro-conductive gel. It was made ultrasonic dopplerometry diagnostic. The most often localization of arteries is revealed on 1,3,5.7.9,111 hour in a lithotomic position. Results are submitted in the table № 8.

In such way we can understand that vascularisation of hemorrhoidic nodules is by paired arteries. Nodules at 11 hrs are vascularised by arteries at 1 and 1 hrs, nodules at 7 hrs are vascularised by arteries at 7 and 9 hrs, nodules at 3 hrs are vascularised by arteries at 3 and 5 hrs.

Table № 8. Results of diagnostic dopplerometry: the most often localization of distal branches of upper hemorrodical arteries.

Localization of an artery (in a position for lithotomic)	%
1 час	94,7
3 hour	98,8
5 hour	61,5
7 hour	96,4
9 hour	60,9
11 hour	97,6

After realization diagnostic doppler it was carried out ligation hemorrhoids arteries. The surgery was performed as modification Meintjes D (2000). An eight-figurative seam string Dexon 2/0 in on 11 and 1 hours, arteries were stitched separately. In points on 3 and 7 hours the uniform block two eight-figurative seams stitched arteries on 3-5 and 7-9 hours. Such updating allows not only to block a vascular leg internal hemorrhoid but also to execute it plication, having fixed unit in a physiological position. Duration of intervention made from 19 about 35 minutes in view of ultrasonic Doppler diagnostic. In 27 cases the combined interventions were carried out. At 4 patients operation was combined with fistulotomy and in 21 case with fissurectomy. Operations are executed as operation Gabriel. At 2 patients it is removed hypertrophic anal papillae.

fistulotomy and fissurectomy

Table № 9.

operacia	Accompanying operation	frequency	percent
hal	-	142	84,0
hal	fissurectomy	21	12,4
hal	fistulotomy and fissurectomy	4	2,4
hal	Removal hipertrophyc anal papillae	2	1,2
Total		169	100

Postoperative caring: We registered time period (in hours) when patients were in clinic. Time period was fixed when patients told that they can walk and go on their own without any help. Patients were examined in early postoperative period (7 and 14 day) and middle postoperative period (1-3 and 6 months). On 7th day we performed external examination, finger examination, examination of stitched area with help of child rectoscope. We did have few complexities; most of them were due to bleeding from the stitched region, perianal edema and sub mucous hematoma.

Patients were enquired for time period of returning to normal active life. The pain syndrome was checked on basis of scale from 0 to 10, where 0 meant complete absence of pain and 10 as maximum pain.

Postoperative period. After stitches patients were advised not to have physical strain for 2 weeks. For softening of stool patients were advised to take Vaseline oil (15-30 gram 2 times a day) for 2 weeks. For the first 4 days patients advised anti-inflammatory suppositories. Prolapsed of the hemorrhoid nodules stopped after first normal defecation. Patients were followed up for next 8 months.

Results of treatment. After performance of intervention the patient was in clinic from 30 about 40 minutes, then independently rose and without assistance leaved home. Directly after intervention patients felt insignificant discomfort in a direct gut. The painful syndrome did not exceed 5 points on scale VAS, on the average made (Mean = $2.30 \pm 0,778$). The next days (Mean = $1,63 \pm 0,835$). Analgetic-"Baralgin» (D-r Reddi *Laboratories Ltd) in tablet the form were applied by patients within first 4 day, despite of volume of intervention. Work capacity of patients was restored by 1-2 day after the executed procedure.

Table № 10.

Painful syndrome an estimation on VAS						
vas	N	Min	Max	Mean	Std. Deviation	Std. Error Mean
vas_1day	169	1	5	2,30	, 778	, 060
vas_2 day	169	1	5	1,63	, 835	, 064
vas_3 day	169	1	5	1,16	, 538	, 041
vas_4day	169	1	5	1,07	, 387	, 030
Reception analgetic in 1dn-4 day after operation						
ketarol_1day	169	1	4	1,99	, 824	, 063
ketarol_2day	169	0	4	1,31	, 599	, 046
ketarol_3day	169	0	4	1,09	, 580	, 045
ketarol_4day	169	0	4	0,19	, 567	, 044

One-Sample Test

	Test Value = 0 t	df	Sig. (2-tailed)	Mean Difference	95 % Confidence Interval of the Difference	
					Lower	Upper
vas-1dn	38,476	169	, 000	2,30	2,18	2,42
vas-2 dn	25,413	169	, 000	1,63	1,51	1,76
vas-3 dn	28,007	169	, 000	1,16	1,08	1,24
vas-4 dn	35,986	169	, 000	1,07	1,01	1,13
ketarol-1dn	31,379	169	, 000	1,99	1,86	2,11
ketarol-2dn	28,485	169	, 000	1,31	1,22	1,40
ketarol-3dn	28,738	169	, 000	1,09	1,01	1,18
ketarol-4dn	31,843	169	, 000	0,19	, 10	, 28

Table № 11 Postoperative complications

complicatia	Frequency	Percent
There are no complications	158	93,5
Secondary hemorrhage	4	2,4
Perianal trombosis	4	2,4
hematoma	1	, 6
hipertermia	1	, 6
Anal fissures	1	, 6
Total	169	100,0

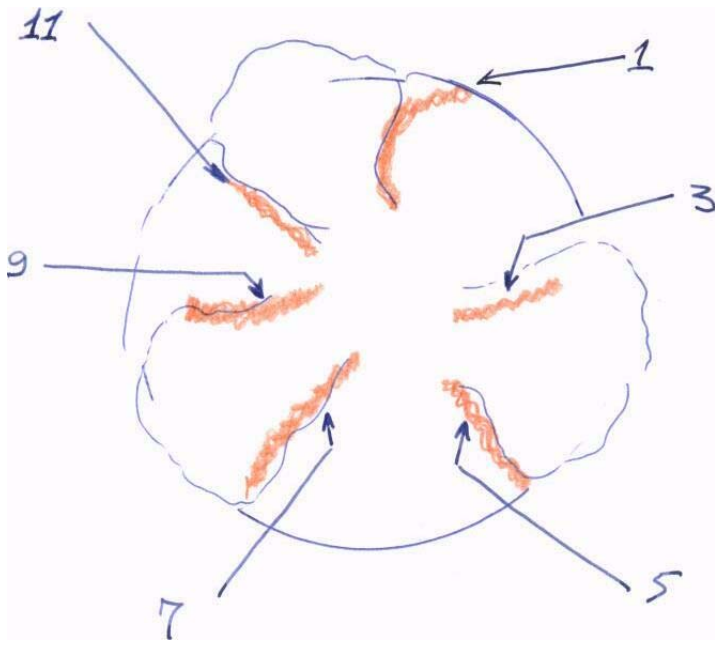
Postoperative complications

Postoperative complications were developed at 4 patients; in one case it has demanded emergency hemorrhoidectomy. In 3 cases the bleeding is stopped by conservative actions. In 2 cases обкалыванием bleeding site mucous a solution of adrenaline 1: 1:10 000. In 1 case the additional seam is imposed. Postoperative bleedings were developed on 8-9 after operation. The reason of complications was insufficiency of a seam, owing to his tension.

The nearest results of treatment. Patients were observed in 1, 3, 8 months. Results of the treatment were rated on the basis of absence of basic symptoms of the disease i.e., stoppage of prolapsed of the hemorrhoid nodules and bleeding. Only in 94 patients, results were monitored in short span of time after the procedure; the symptoms were completely absent in 87%. In 13% patients who were in III and IV stages of disease bleeding and prolepses of the hemorrhoidic nodules were found. These symptoms were treated with the help of sclerotherapy and infrared coagulation of hemorrhoid nodule tissue.

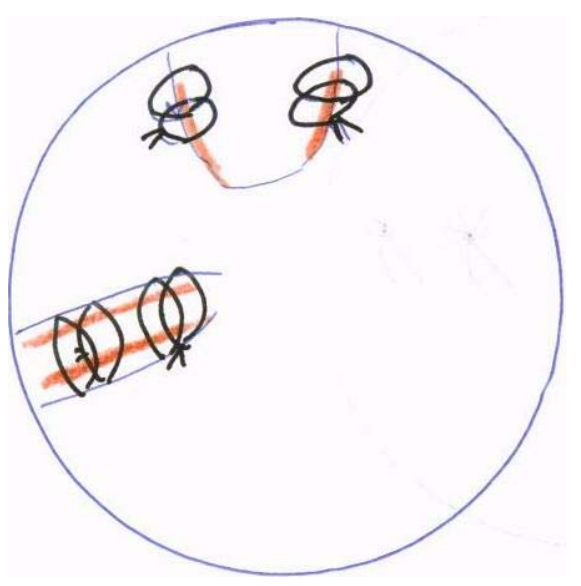
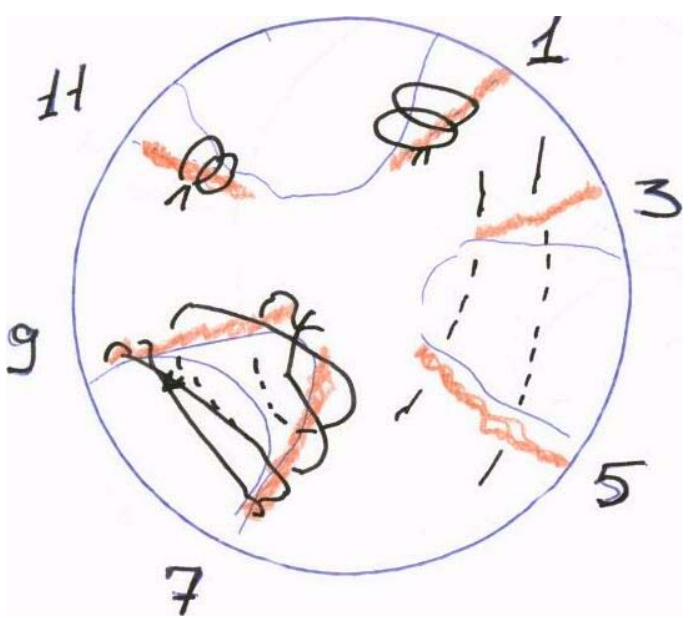
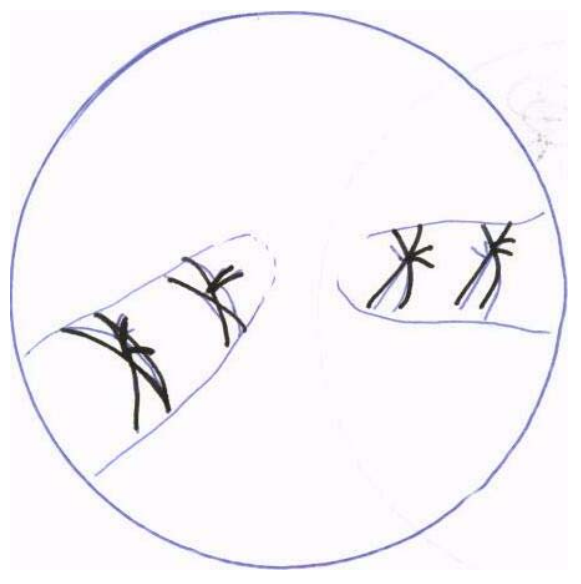
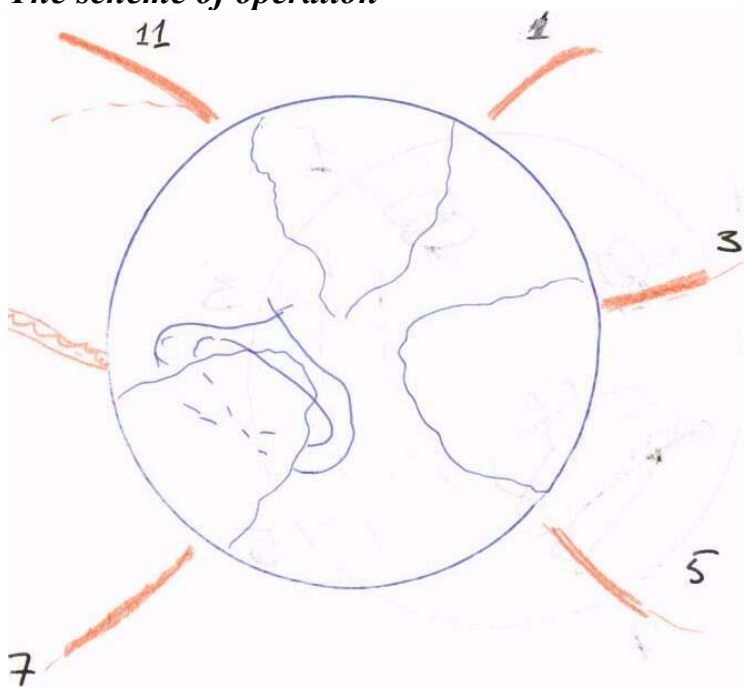
The conclusion

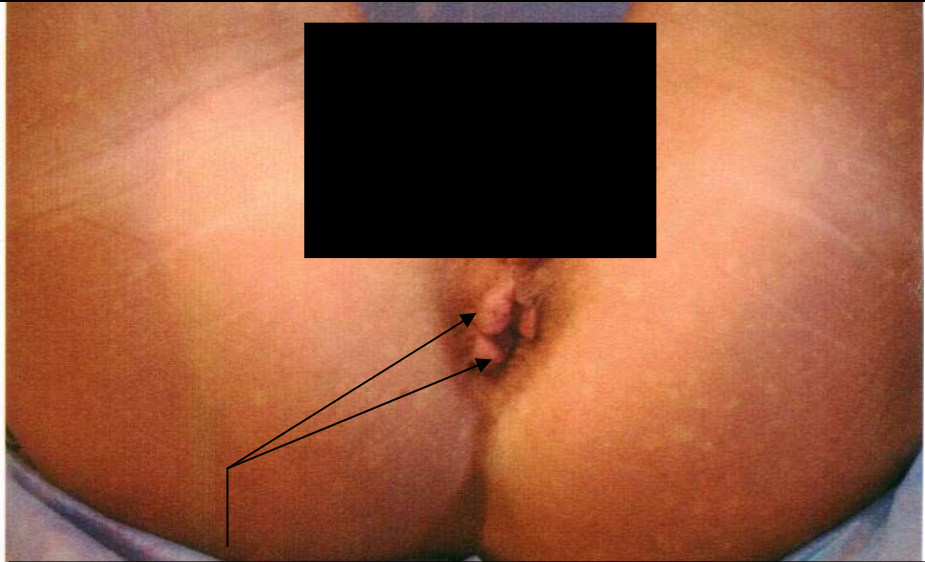
In our opinion, hemorrhoids ligation arteries under the control ultrasonic control - pathogenesis the proved and effective medical procedure that can be carried out it is outpatient. By means of this technique it is possible to reduce arterial inflow of blood to hemorrhoids and simultaneously to fix hemorrhoids at a level anal the canal that prevents their prolapsed. Good results are received at treatment II-III of a stage of disease. At treatment IV it is expedient to combine methods of treatment. Use of a method is well transferred to out patient treatment by patients, does not demand treatment and can be combined, with fissurectomy and fistulotomy.



The appendix to the report

The scheme of operation





Prolapsed hemorrhoids on the 11 and 7 hour



Procedure is completeted