

LASER HEMORROIDOPLASTY, HARMONIC SCALPEL HEMORROIDECTOMY VERSUS CONVENTIONAL HEMORROIDECTOMY

A CONTROLLED RANDOMIZED TRIAL

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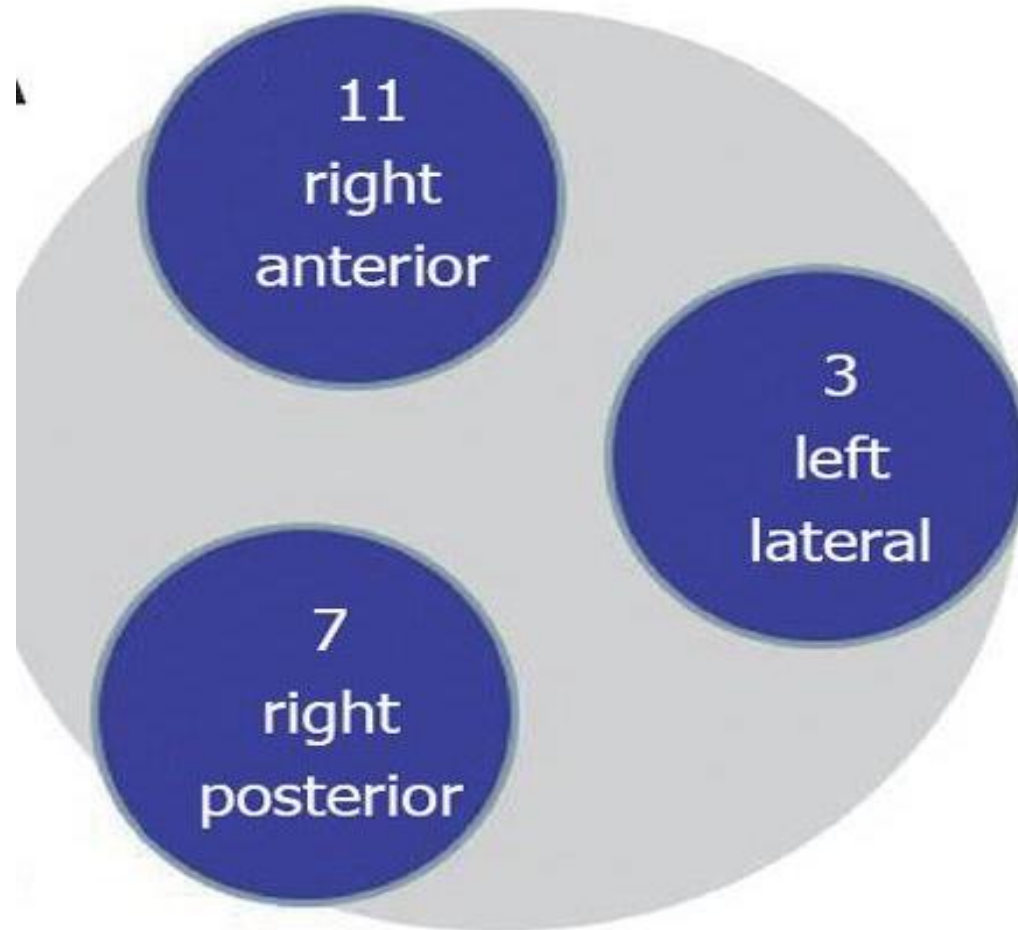
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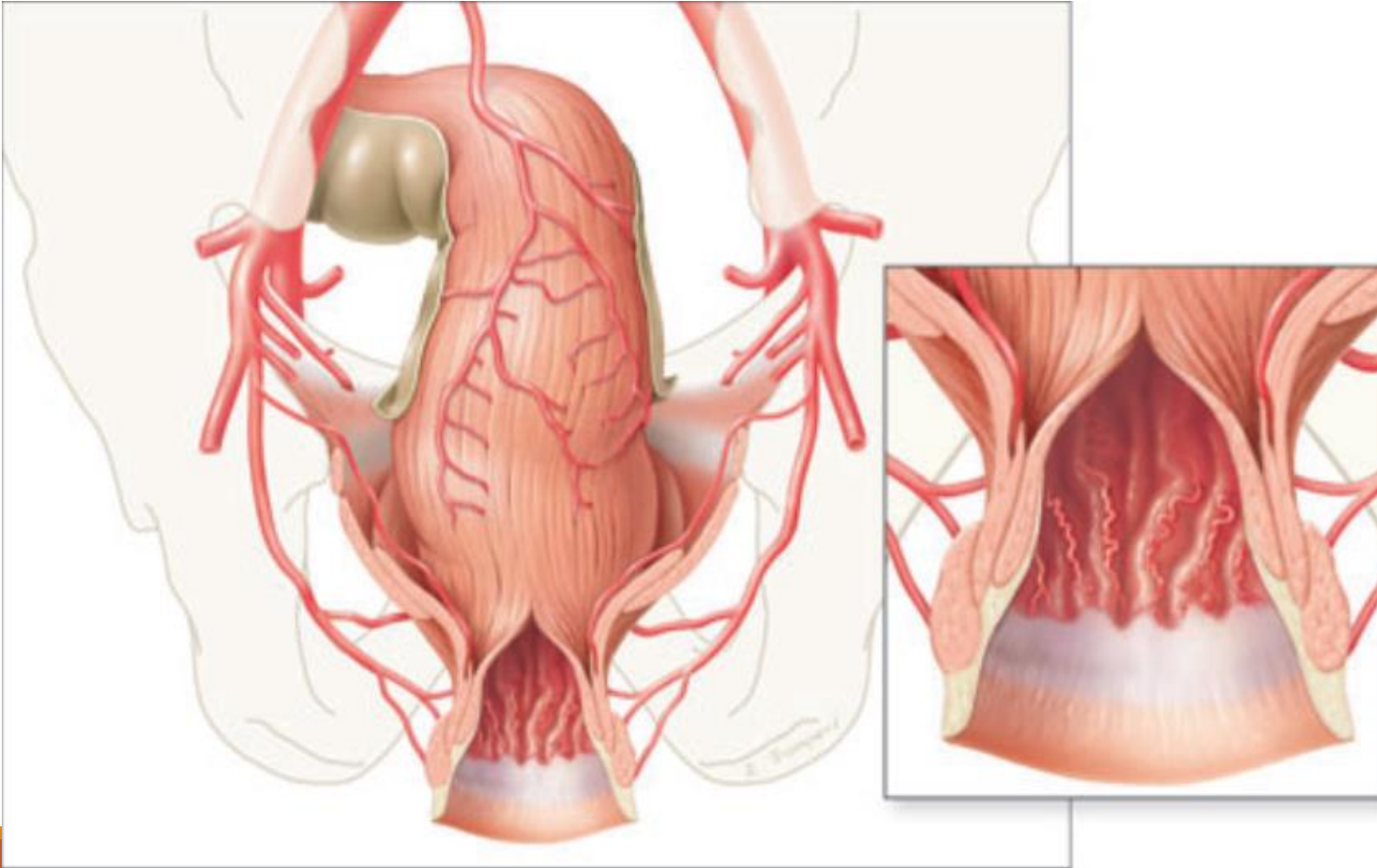
Introduction

- ❑ Incidence 5-36% in the literature
- ❑ A dilatation of the hemorrhoidal venous plexus.
- ❑ Vascular theory : hyper pressure in the superior **hemorrhoidal arteries** leads to dilatation of the hemorrhoidal venous plexus.
- ❑ Mechanical theory: **sliding anal canal lining** and mucosal cushions disintegrate or deteriorate

Hemorrhoids position??



Superior rectal artery terminal branches



2 mm calibre vessels

2-3 cm above dentate line

8- 12 branches (1, 3, 5, 7, 8, 11?!)

Materials and Methods

- prospective randomized study
- 150 consecutive patients suffering from 3rd or 4th grade hemorrhoidal disease
- General surgery department, Kafr Elsheikh university hospital from January 2021 to January 2022.

Materials and Methods

Inclusion criteria:	Exclusion criteria:
All patients with grade 3 – 4 hemorrhoids.	<ol style="list-style-type: none">1) Other anorectal disease (fissure, fistula).2) Thrombosed hemorrhoids.3) Anal dilatation and sphincterotomy during surgery.4) Neurological deficit.5) Inflammatory bowel disease

Randomization

Group A (n=50)	Group B (n=50)	Group C (n=50)
Conventional hemorrhoidectomy (CH) using monopolar diathermy	Harmonic Scalpel hemorrhoidectomy (HSH) using Harmonic Focus+ shears.	laser hemorrhoidoplasty (LHP) using diode laser 1470 nm.

Operative technique

CH ---- Milligan-Morgan technique



Laser hemorrhoidoplasty



Results

Comparison between the studied groups regarding present history: statistically non-significant regarding grade, onset or presenting symptoms

Parameters	Groups			Test	
	Group A	Group B	Group C	χ^2	p
	N=50(%)	N=50(%)	N=50(%)		
Grade					
III	39 (76%)	43 (86%)	38 (76%)	MC	0.433
IV	11 (22%)	7 (14%)	12 (24%)		
Symptoms					
Bleeding	26 (52%)	28 (56%)	33 (66%)	MC	0.807
Itching	8 (16%)	8 (16%)	7 (14%)		
Pain	5 (10%)	6 (12%)	3 (6%)		
Prolapse	11 (22%)	8 (16%)	7 (14%)		
Onset:				KW	
Median (IQR)	9 (6 – 12)	8 (6 – 12)	9 (6.5 – 12)	3.327	0.189

Results

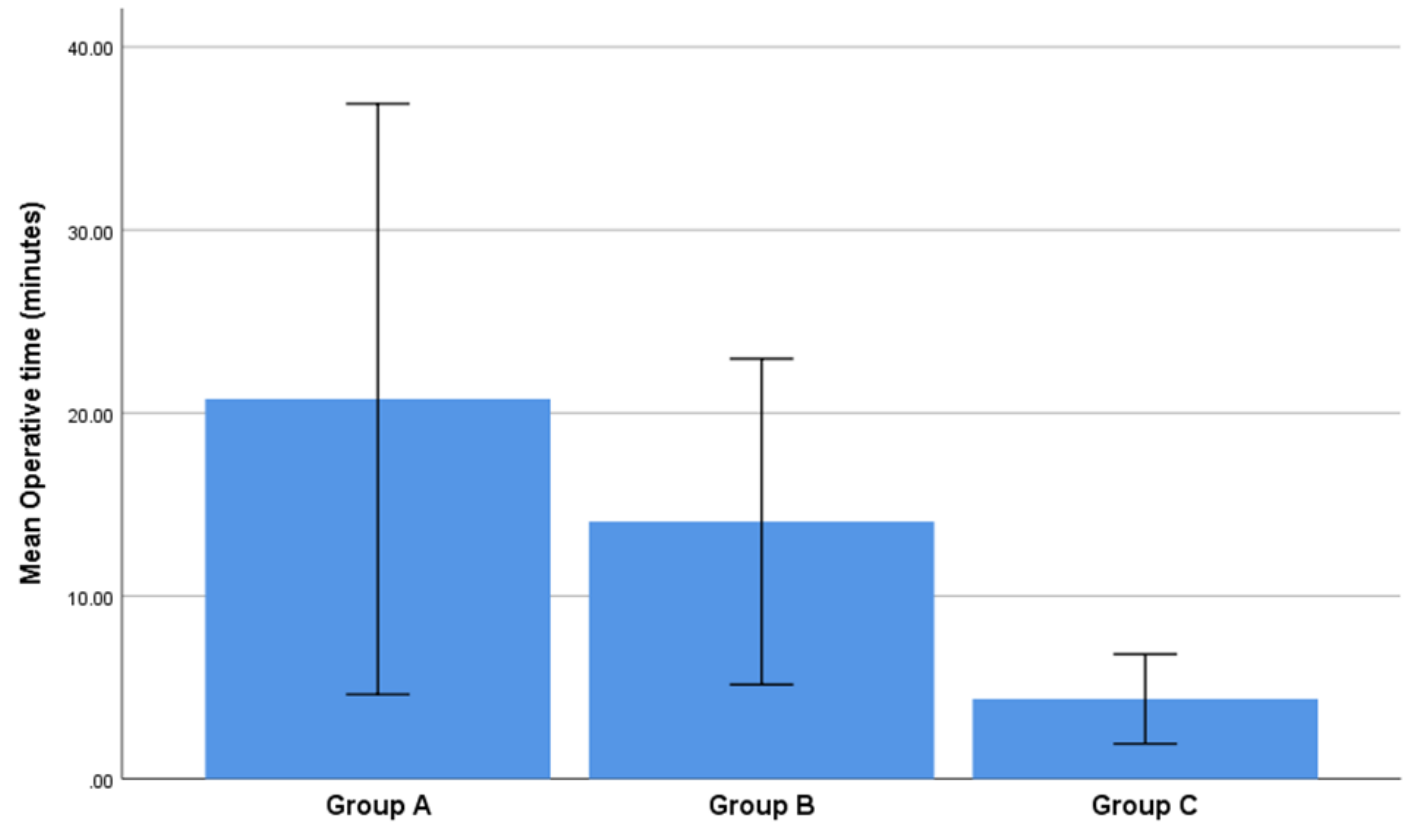
operative time

statistically significant difference
between the studied groups regarding
operative time

LHP mean = 4.37 ± 1.22 min

HSH mean = 14.06 ± 4.45 min

CH mean = 20.76 ± 8.07



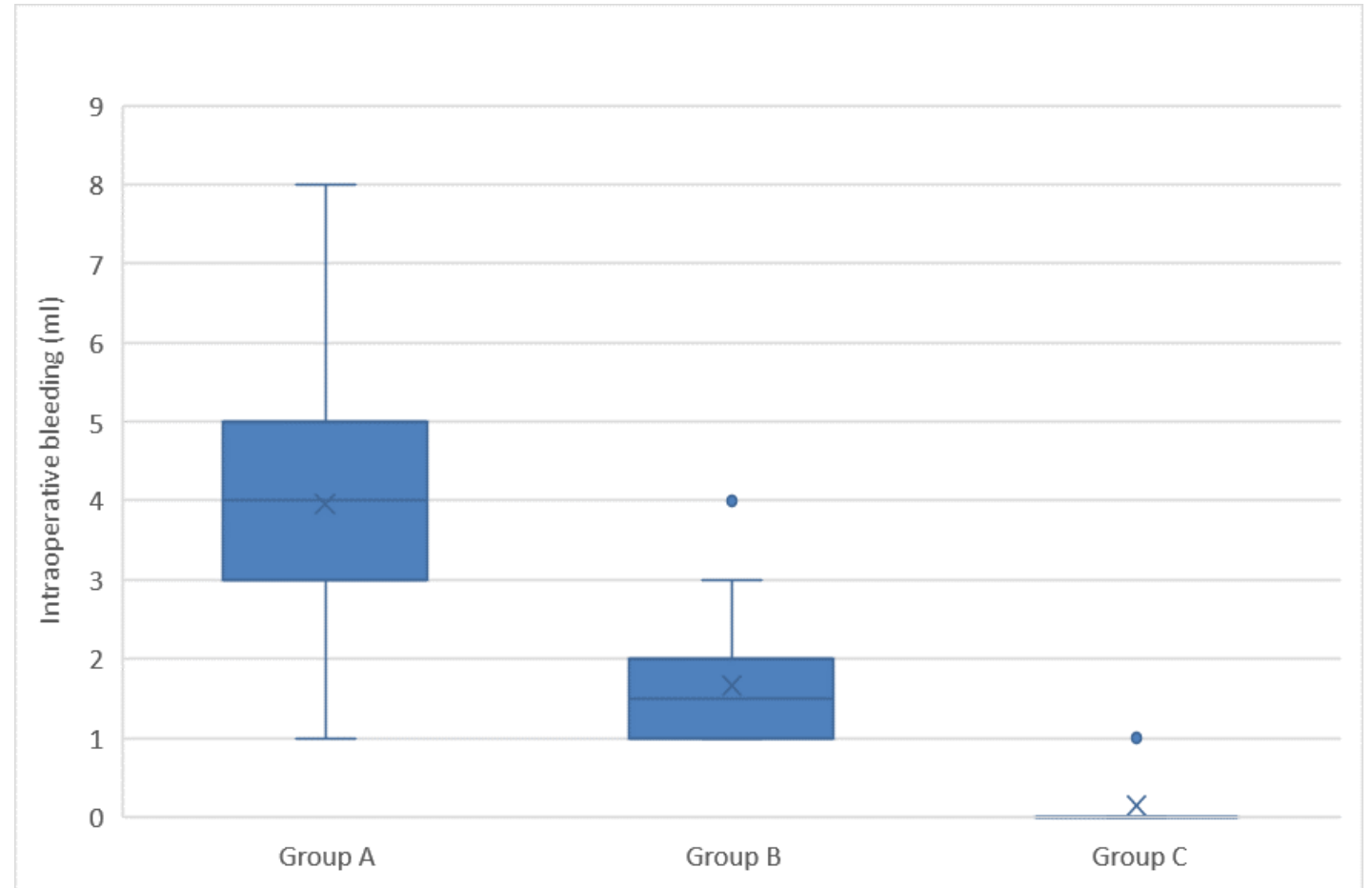
Simple bar chart showing comparison between studied groups
regarding operative time

Results

Intraoperative bleeding

intraoperative bleeding, there is significant difference between groups regarding intraoperative bleeding.

43 patients within group C had no bleeding

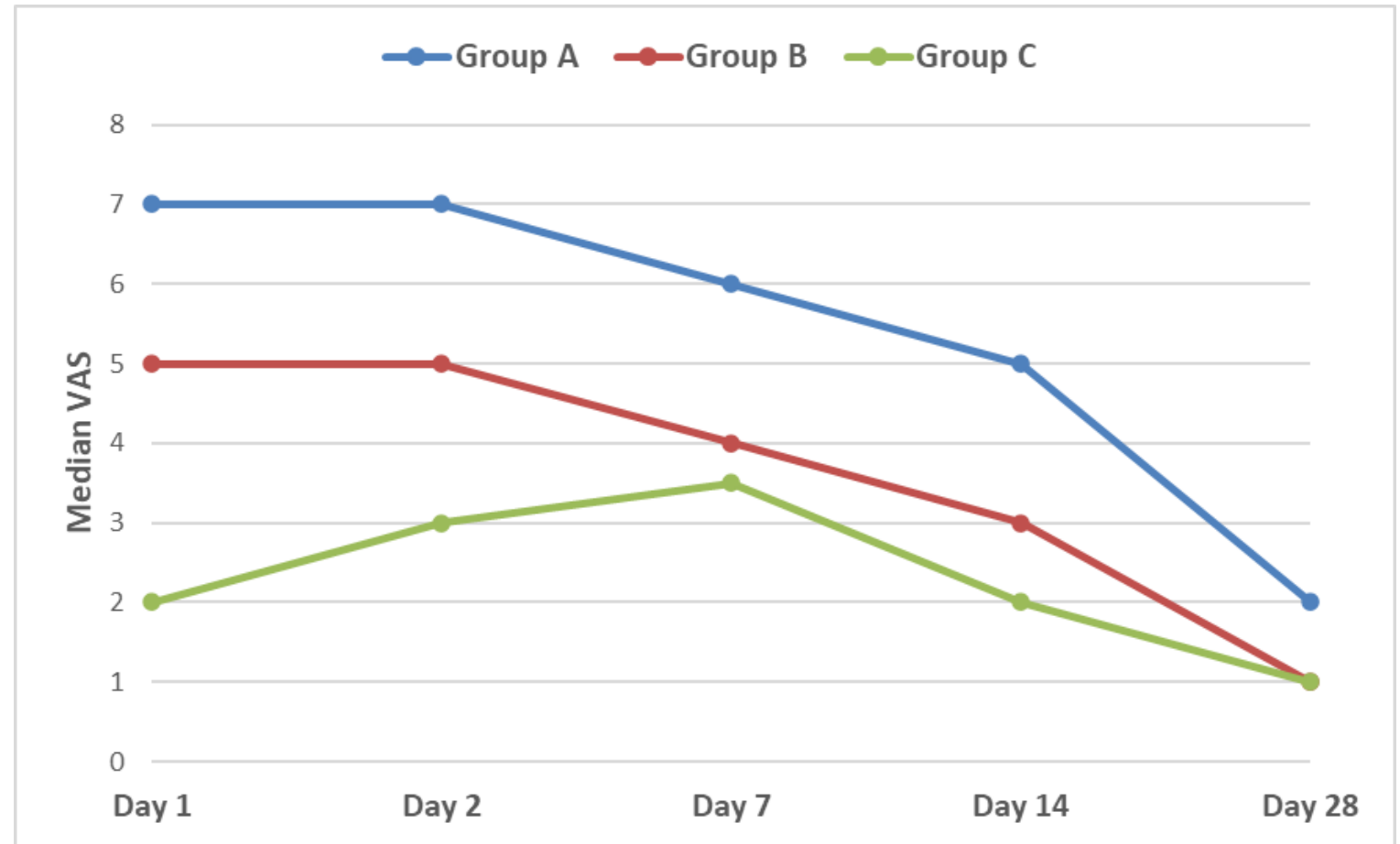


boxplot comparing intraoperative bleeding amount

Results

VAS pain score

the difference is significant between each two individual groups. Highest VAS pain score is found in group A followed by group B then group C.



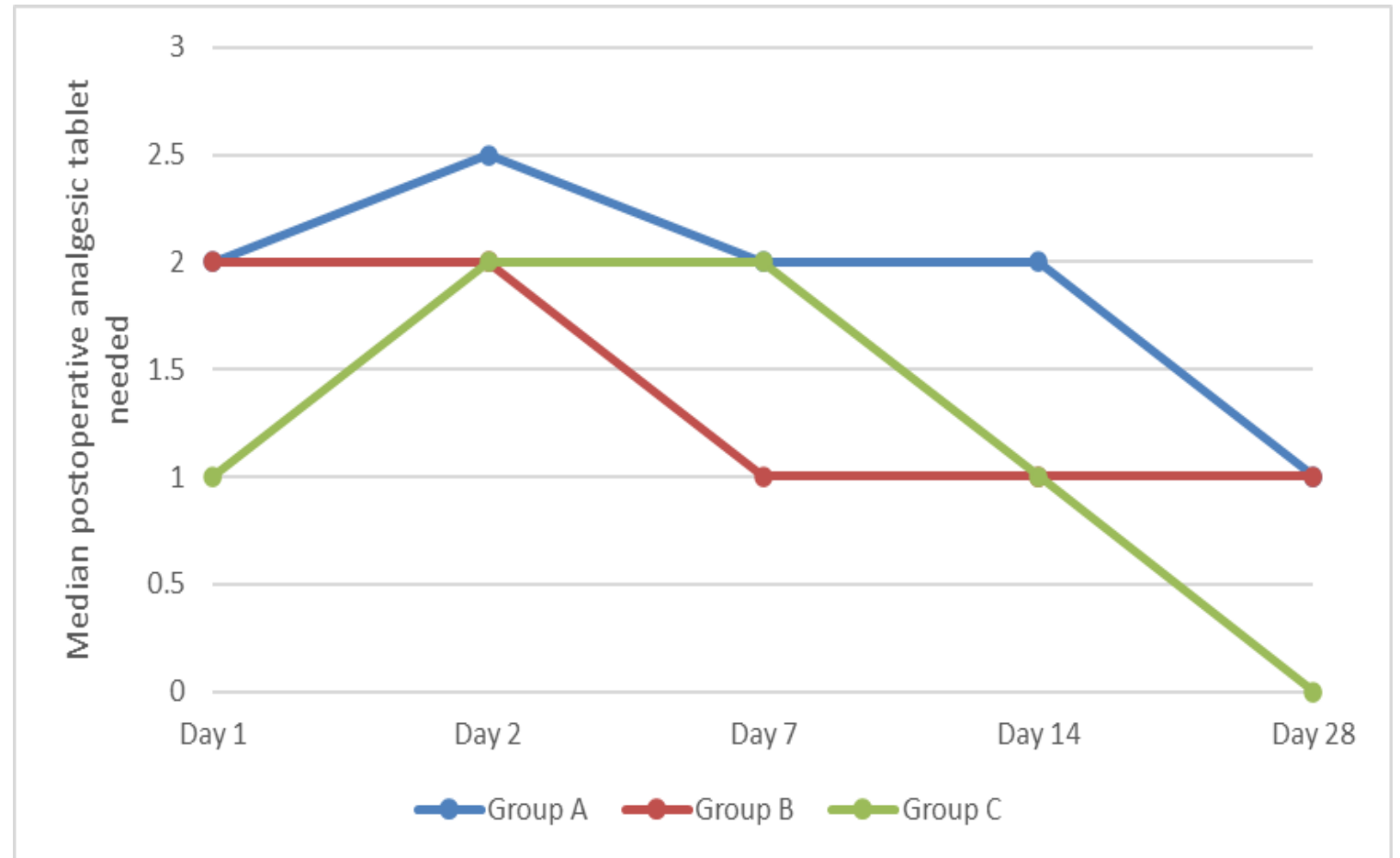
Multiple line graph showing comparison between the studied groups regarding VAS over postoperative follow up period

Results

Analgesia usage

On doing pairwise comparison, the difference is significant between groups C and both A and B concerning analgesia on first day and day 28 while there is non-significant difference between group A and B

The difference is significant between each two individual groups concerning analgesia on day 7



Multiple line graph showing comparison regarding analgesics over postoperative follow up period

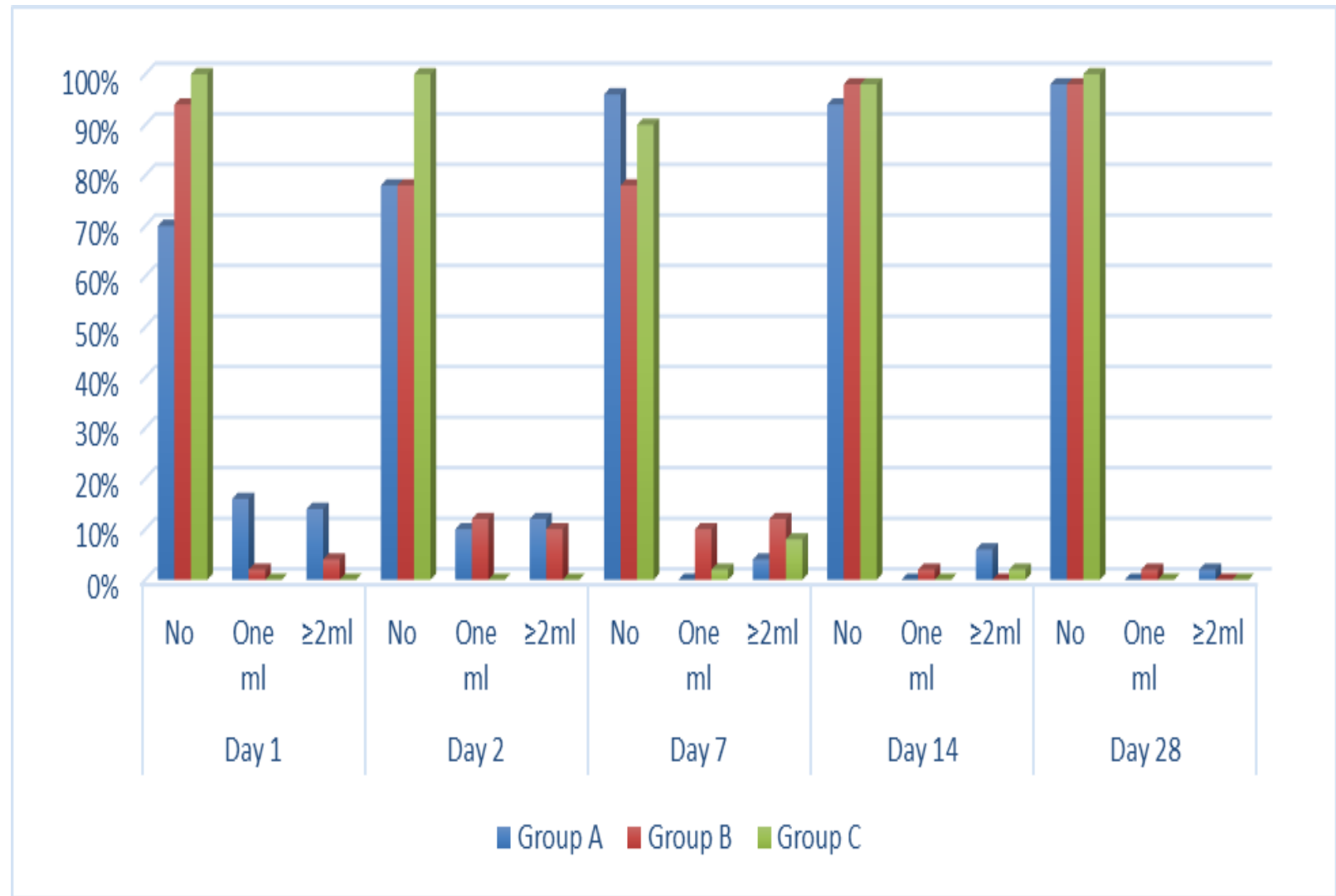
Results

Postoperative bleeding

statistically significant difference between the studied groups regarding postoperative bleeding on days 1, 2 and 7

On day 1, the difference is significant between group A and each other group while groups B and C comparison did not reveal any significant difference (70% of those within group A had no bleeding versus 100% in group C and 94% in group B).

On day 2, the difference is significant between group C and each other group while groups B and A comparison did not reveal any significant difference (100% of those within group C had no bleeding versus 78% in each of groups B and A).



Multiple bar chart showing comparison between the studied groups regarding postoperative bleeding

Results

Perineal wetness

statistically significant difference between the studied groups regarding incidence of perineal wetness at first and sixth week.

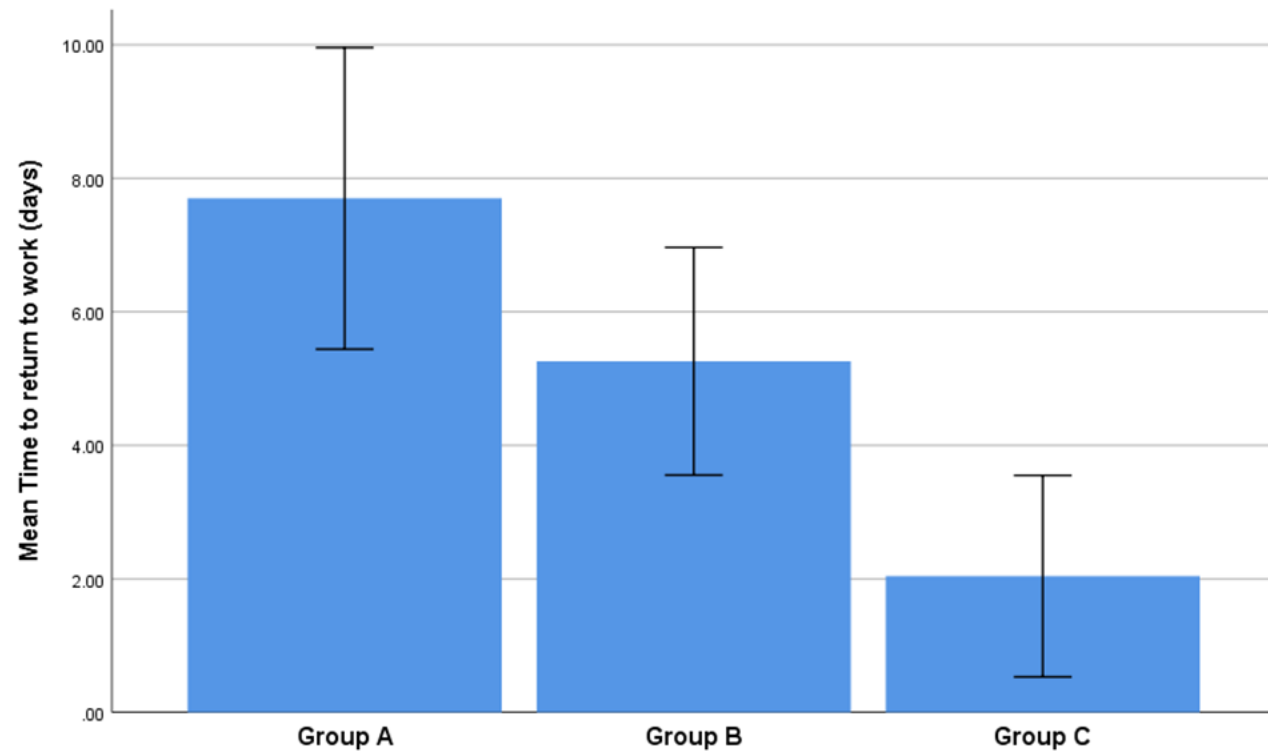
No patient within group C had perineal wetness

Perineal wetness	Groups			Test	
	Group A	Group B	Group C	χ^2	p
	N=50(%)	N=50(%)	N=50(%)		
1st week					
Yes	49 (98%)	50 (100%)	0 (0%)	MC	<0.001**
6th week					
Yes	28 (56%)	17 (34%)	0 (0%)	MC	<0.001**
3rd month					
Yes	5 (10%)	3 (6%)	0 (0%)	MC	0.06
6th month:					
Yes	0 (0%)	0 (0%)	0 (0%)	MC	>0.999

Results

Time to return to work

Parameters	Groups			Test	
	Group A	Group B	Group C	F	p
	Mean \pm SD	Mean \pm SD	Mean \pm SD		
Time to return to work (day)	7.7 \pm 1.13	5.26 \pm 0.85	2.04 \pm 0.75	469.994	<0.001**



Results

No recurrence in 1 year
follow up



Results

Hematoma 1 case

Burn 1 case

Perianal abscess 2 cases

Responded to medical treatment



Discussion

Non-excisional laser therapies for hemorrhoidal disease: a systematic review of the literature (2020)

Table 6 Surgical indicators of postoperative outcomes: improvement, persistence, resolution, recurrence, and reoperation

Study	HD downgrading	Symptoms improvement	Persistence	Resolution	Recurrence	Reoperation (timepoint; type)	Follow-up (in months)
Laser hemorrhoidoplasty							
Karahaliloglu et al. ⁸	-	-	-	-	11.3% ^a	54.7% (within 3 months, LH)	12
Jahanshahi et al. ¹¹	-	-	-	-	0%	-	12
Brusciano et al. ¹²	-	-	-	-	0%	-	8.6 ^b
Plapler et al. ¹³	LH HC	-	-	60.4% ^c -	-	-	1
Naderan et al. ¹⁴	LH HC	-	-	70% ^a 76.7% ^a	-	0% 0%	12
Alsisy et al. ¹⁵	LH HC	-	0% ^a 10% ^a	100% ^a 90% ^a	0% ^a 0%	0% 0%	3
Poskus et al. ¹⁶	LH MP HC	-	-	72.5% ^a 58.5% ^a 82.5% ^a	10% ^a 22% ^a 0% ^{a, d}	-	12
Hemorrhoidal laser procedure							
Salfi et al. ⁹	-	91%	-	-	9.4%	-	12
Giamundo et al. ¹⁷	77%	91.7%	7% ^{a, c}	-	8.3% ^a	-	5.8 (1–12) ^b
Crea et al. ¹⁸	>85%	85%	-	> 90% ^a	5%	-	15 (6–30) ^e
De Nardi et al. ¹⁹	-	86.3%	9.8% ^a	76.9% ^c	7.8%	7.8% (2 [1–5] ^b months; 2% RBL, 3.8% THD, 2% HC)	26.3 ± 9.1 ^b
Boarini et al. ²⁰	80%	-	-	83.6% ^a	-	-	6
Giamundo et al. ²¹	-	-	9.7% ^{a, c, e}	90.3% ^a	-	2.8% (6 ^b months; 0.7% HeLP, 0.7% SH, 0.7% THD, 0.7% HC)	12
Giamundo et al. ²²	HeLP 80% RBL 40% ^d	-	-	90.0% ^a 53.3% ^{a, d}	-	-	6

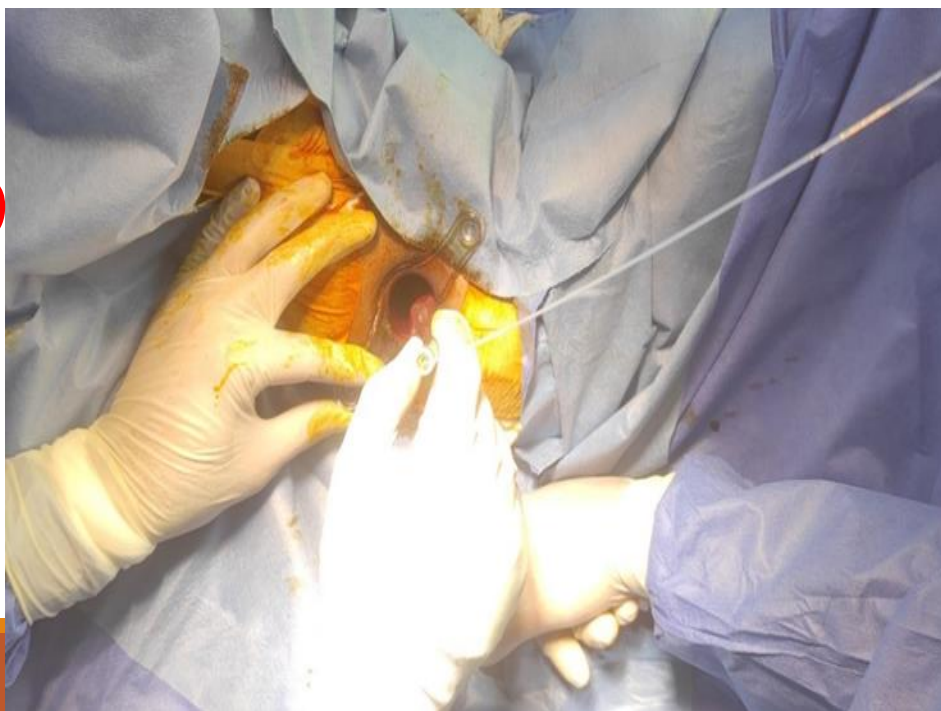
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Conclusion

- LHP showed with significant amelioration of hemorrhoidal symptoms.
- Given the great significant of reducing post-operative pain, bleeding, mucous discharge and early return to daily activities unlike conventional hemorrhoidectomy surgery.
- Perfect for grade 3 and 4 hemorrhoids with addition of mucopexy if associated mucosal prolapse

Save the date
Saturday
3.9.2022



UNDER PATRONAGE OF

PROF. TAHA ISMAIL

Dean of the Faculty of Medicine

PROF. KHALID ISMAIL

Head of General Surgery department

WORKSHOP MODERATOR

D. Ibrahim El Kashef

LASER TECHNOLOGY IN PROCTOLOGY

- Laser hemorrhoidoplasty
- Laser in complex perianal fistula
- Laser in anal fissure
- Laser pilonidal sinus treatment



Laser proctology

Saturday 3.9.2022 | 10 am
Kafr El Sheikh University Hospital

ورشة عمل جراحات الشرج بالليزر

قسم الجراحة العامة
مستشفى جامعة كفر الشيخ

يتشرف بدعوتكم يوم السبت الموافق 2022/9/3
بالمستشفى الجامعي بكفر الشيخ في تمام
الساعة العاشرة صباحا

نقل مباشر من غرف العمليات