Laser lateral sphincterolysis Vs Botox Injection in Chronic anal fissure treatment

A CONTROLLED RANDOMIZED TRIAL

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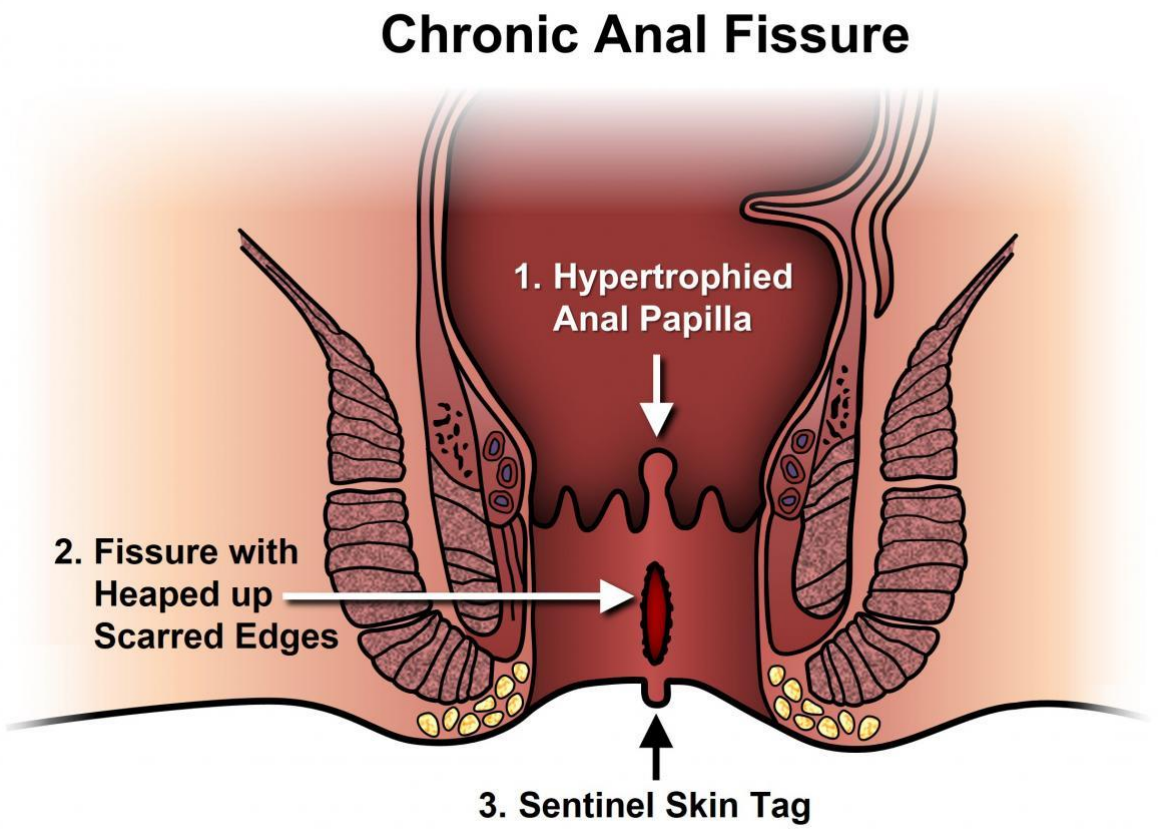
Introduction

- Anal fissure is an ulcer in the squamous epithelium of the anus located just distal to the muco-cutaneous junction and usually in the posterior midline.
- The etiology is not so clear, nor are there accepted methods for fissure prevention. The most consistent finding in typical fissures is **hypertonia** of the internal anal sphincter, which is so severe that the pain caused by fissure is thought to be due to ischemia (Schouten 1994)
- Relief of the spasm has been associated with relief of pain and healing of the fissure without recurrence.



Introduction

A gold standard definitive treatment for CAF remains **lateral sphincterotomy** despite the variety of surgical options.

- **Non-surgical therapies** include nitroglycerin ointment , GTN or glyceryl trinitrate , botulinum toxin injection (Botox), or calcium channel inhibitors (CCBs) delivered as ointment or tablets (diltiazem or nifedipine).

- **Operative techniques** commonly used include: anal stretch, open lateral sphincterotomy, closed lateral sphincterotomy, posterior midline sphincterotomy and to a lesser extent dermal flap coverage of the fissure.

- Risks of **persistence** of the fissure (which is persistence of anal pain)or a **recurrence** (anatomic finding of a fissure after a period of healing and amelioration of symptoms following treatment) .(Nelson 2011)

- Post treatment **minor incontinence** (the most commonly reported morbidity of operations for anal fissure; used synonymously with incontinence to flatus or anal seepage) (J García-Aguilar etal 2018)

Aim of the work

- compare between Laser lateral sphincterolysis Vs Botox Injection in Chronic anal fissure treatment

- Regarding healing rate, recurrence, incontinence.

Materials and Methods

- Prospective randomized study
- 40 consecutive patients suffering from CAF.
- General surgery department, Kafr Elsheikh university hospital from February 2021 to June 2023.

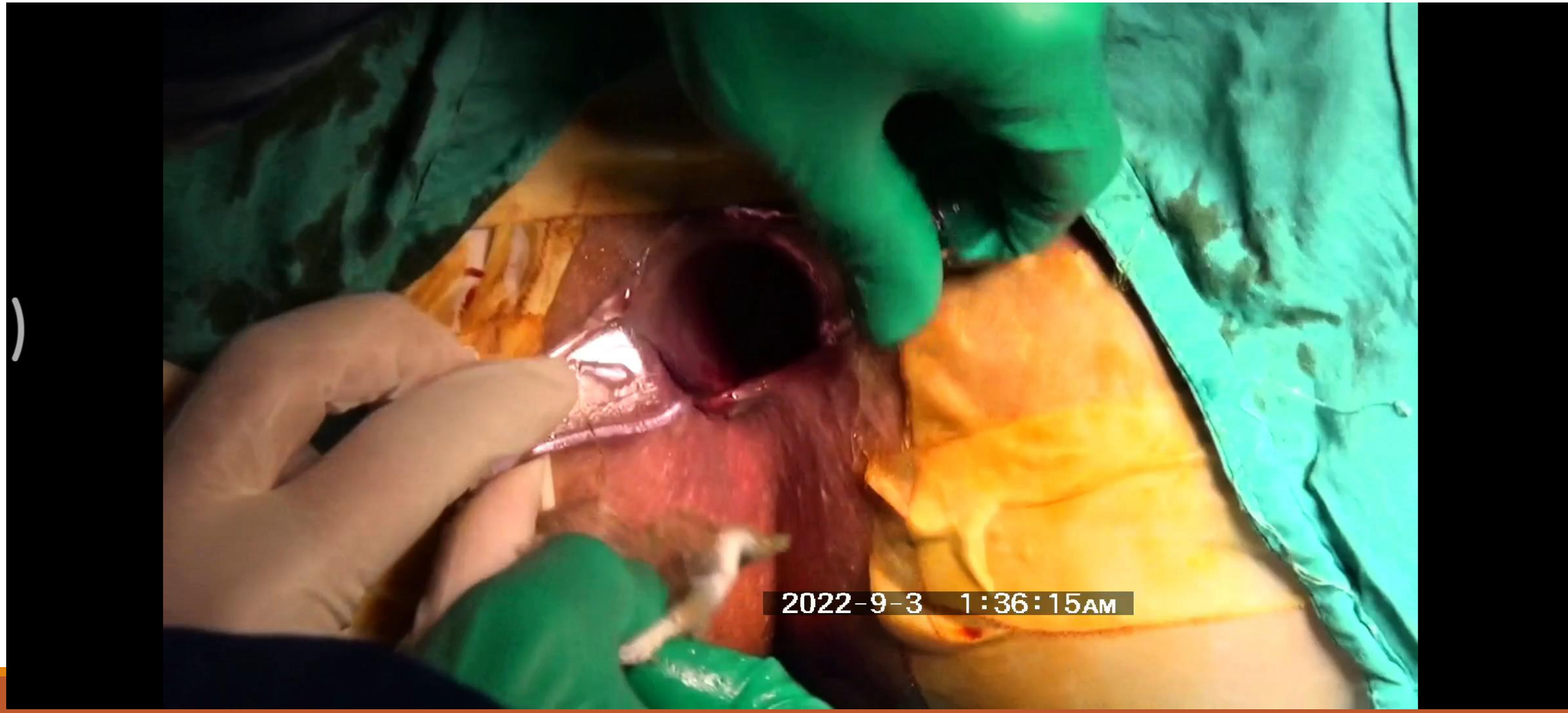
Materials and Methods

Inclusion criteria:	Exclusion criteria:
All patients 18-60 years old suffering from typical CAF.	• multiple fissures • off the midline • inflammatory bowel disease • local or systemic malignancy • venereal infection, trauma, tuberculosis • chemotherapy •Diabetic patient •HGB < 10 g/dl •Platelet count < 105/ul

Randomization

Group A (n=20)	Group B (n=20)
Fissurectomy + Laser lateral sphincterolysis using a diode laser 1470 nm machine	Fissurectomy + 4 quadrant internal anal sphincter injection with botulinum toxin type A (botox) 100ug

Operative technique (LASER Sphincterolysis)



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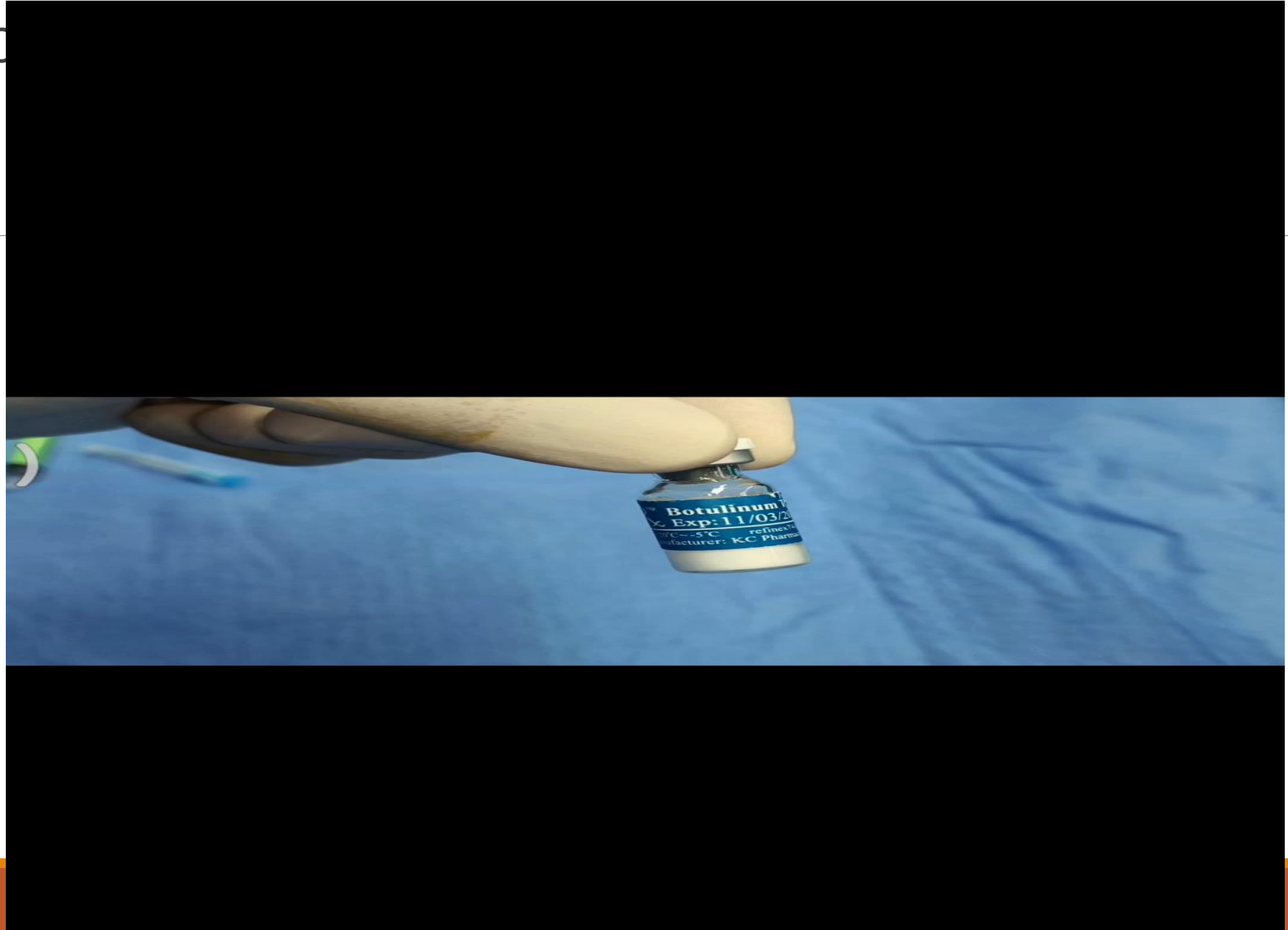


Results

Comparison between the studied groups regarding demographic data: There is statistically non-significant difference between the studied groups regarding gender, age, smoking or body mass index

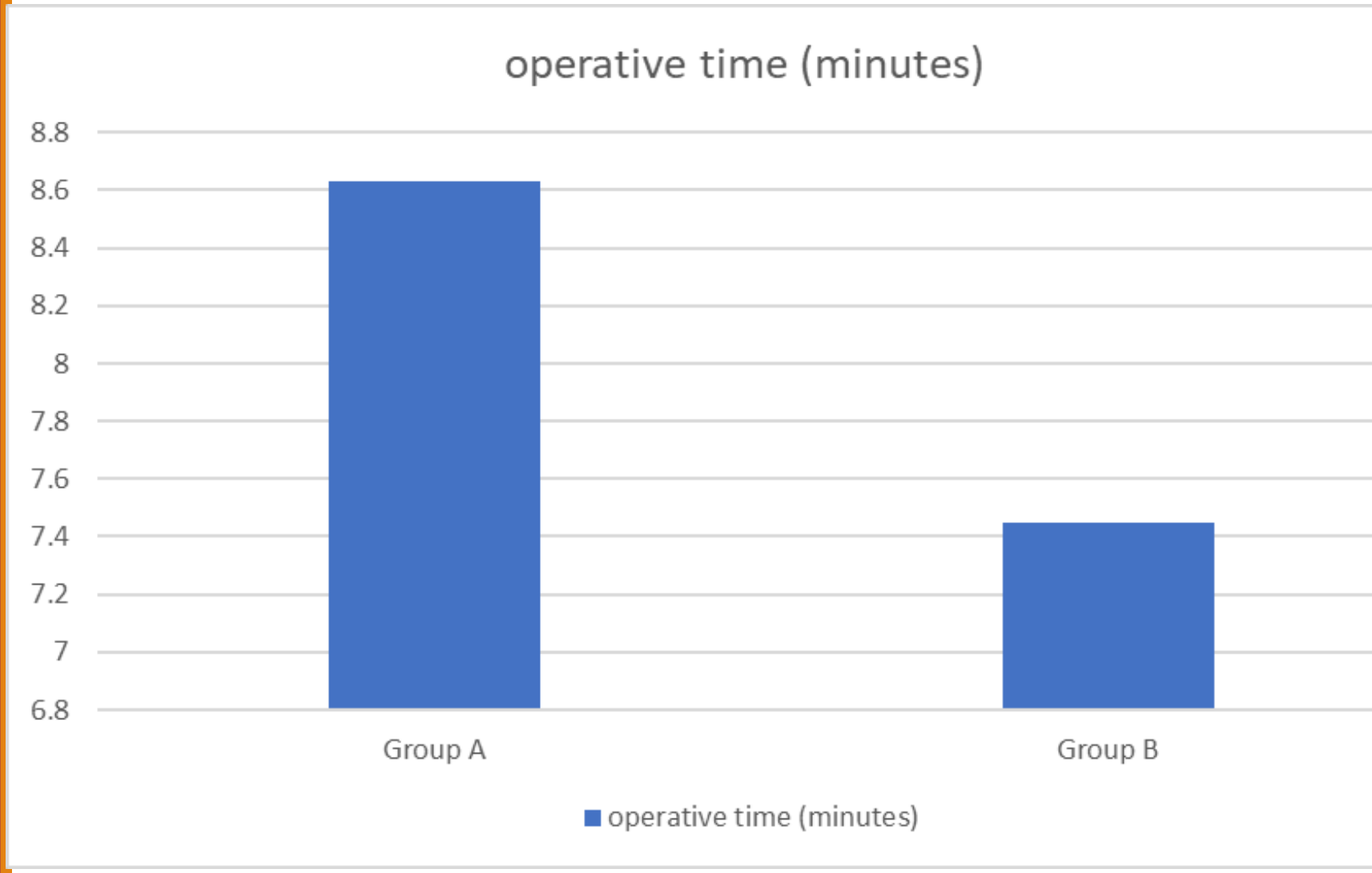
Parameters	**Groups**		Test	
	Group A	**Group B**	**χ^2**	**p**
	N=20(%)	**N=20(%)**		
Gender:				
Male	12 (60%)	13 (65%)	0.058	0.971
Female	8 (66%)	7 (35%)		
Smoking:				
No	14 (70%)	17 (85%)	0.079	0.961
Yes	6 (30%)	3 (15%)		
	Mean ± SD	**Mean ± SD**	**F**	**p**
Age (year)	25.52 ± 5.96	26.78±4.14	0.627	0.537
BMI (kg/m^2)	**28.8**±2.57	**29.3**±2.71	1.104	0.334

Results
operative time

statistically significant difference between the studied groups regarding operative time

The mean operative duration 8.63 ± 3.42 min in group A

and 7.45 ± 2.41 min in group B ($p > 0.05$)



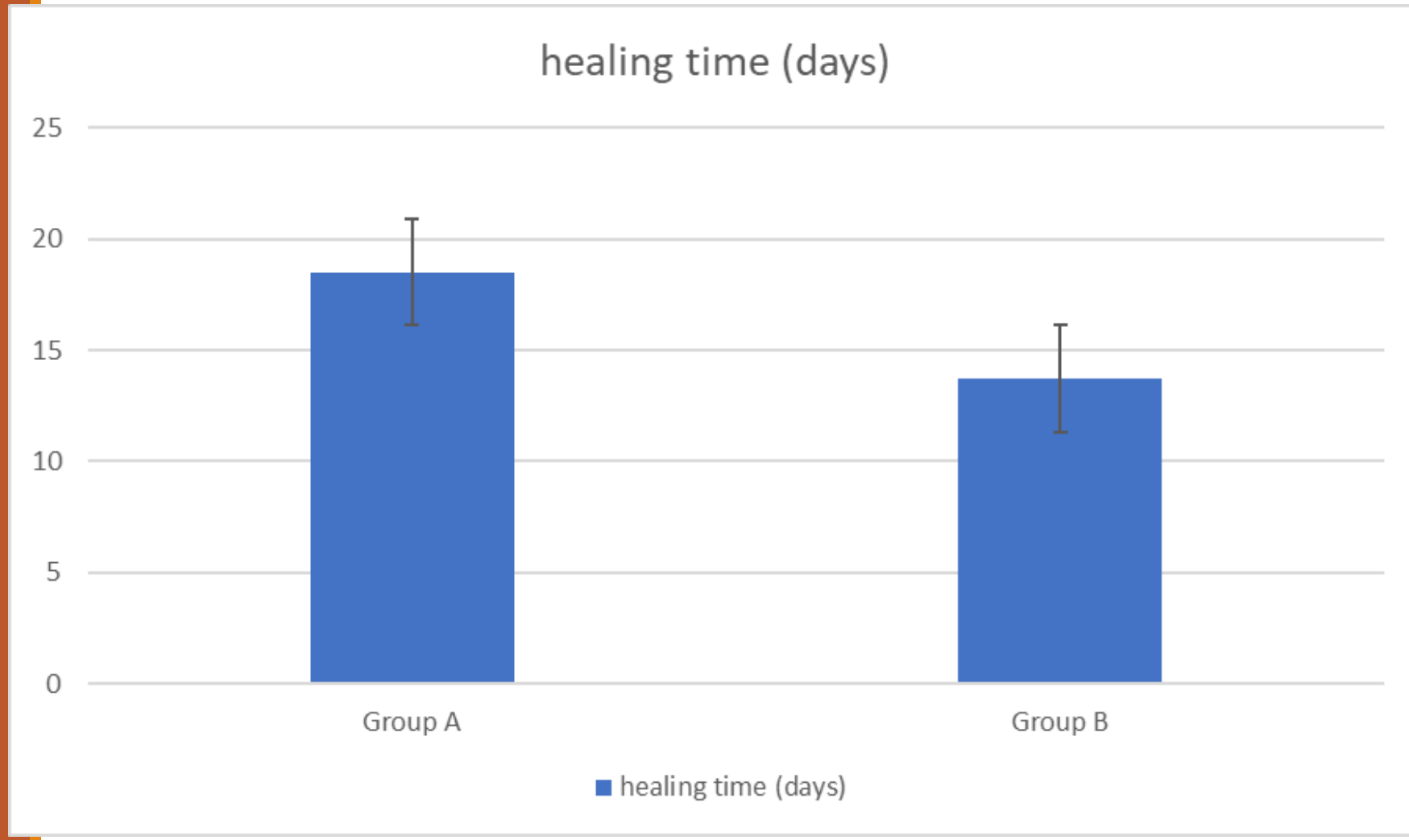
Simple bar chart showing comparison between studied groups regarding operative time

Results
Healing time

statistically significant difference between the studied groups regarding operative time

The mean healing duration of 19.5 ± 4.4 days days in group A

13± 6.4 days in group B



Simple bar chart showing comparison between studied groups regarding healing time

Results
Time to return to work

There is no statistically significant difference between the studied groups regarding time to return to work or length of hospital stay

Parameters	Groups		Test
	Group A	Group B	p
	Mean ± SD	Mean ± SD	
Time to return to work (day)	14.7 ± 1.13	8.26 ± 0.85	<0.001
Hospital stay (hours)	18 ± 7	17 ± 5	<0.001

Results

Complications

Group A	Group B
1 case of recurrence after 1 year fu	2 patients had recurrence ,were submitted to another botox injection with no recurrence in 6 months.
2 cases had gas incontince …noticeably were female patients with previous normal delivery	No cases of incontinence

Conclusion

- Botox is a promising minimally invasive treatment for CAF with high patient satisfaction and an acceptable success rate.
- BOTOX is easy to perform and reproducible with a short learning curve.
- BOTOX is ideal for acute anal fissure or groups vulnerable to IAS injury (female with previous vaginal delivery or previous history of sphincterotomy).

Thank you

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