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Published In/Presented At

Yushuva, A., Baranski, G., & Park, J. (2016, May 1). *Comparison of Wound Complications in Open vs Closed Lateral Internal Sphincterotomy for Anal Fissure*. Poster presented at: American Society of Colon and Rectal Surgeons, Los Angeles, CA.

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Comparison of Wound Complications in Open vs Closed Lateral Internal Sphincterotomy for Anal Fissure

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INTRODUCTION

Partial lateral internal sphincterotomy (PLIS) is considered the preferred surgical treatment for chronic anal fissure in most patients. PLIS can be performed by either the open or closed technique, with equivalent efficacy in fissure healing rates. Few studies have specifically compared wound complication rates between the two techniques.

OBJECTIVE

Compare the incidence of wound complications at the sphincterotomy site between open and closed technique.

METHODS

Retrospective review of patients in a single specialty practice undergoing PLIS for chronic anal fissure over a 5 year period. We then identified those patients who underwent either open or closed sphincterotomy. Preoperative variables included age, gender, surgeon, and location of fissure. Post-operative outcomes included surgical site infection, delayed wound healing (wound present at 4 weeks postop), need for reoperation, and fissure healing. Statistical analysis was performed using Chi-square and Fisher's exact test. Patients with active infection at the time of surgery, patients with Crohn's disease, and those lost to follow-up were not included in the analysis.

RESULTS

253 patients were identified, 88 of whom had open sphincterotomy, while 165 had closed sphincterotomy. There were no differences between groups with regard to age, gender, location of fissure, surgeon and length of follow-up. Compared to the closed technique, the open technique had a higher incidence of surgical site infection (14.8% vs 2.4%, $p < 0.0001$), delayed wound healing (30.7% vs 12.6%, $p = 0.001$) and need for reoperation (9.1% vs 1.8%, $p = 0.018$). There was no difference in fissure healing rate.

Table 1. Demographics

	Open (n=88 pts)	Closed (n=165 pts)
Median Age	47.9	46.3
Gender		
Male	48 (54.6%)	87 (52.7%)
Female	40 (45.4%)	78 (47.2%)
Location		
Posterior	62 (70.5%)	120 (72.7%)
Anterior	20 (22.7%)	32 (19.4%)
Other	6 (6.8%)	13 (7.9%)

Table 2. Results

	Open (n=88 pts)	Closed (n=165 pts)	P-value	Odds Ratio
Infection	13 (14.8%)	4 (2.4%)	0.0002	0.141
Delayed Healing	27 (30.7%)	21 (12.6%)	0.0005	0.329
Re-operation	8 (9.1%)	3 (1.8%)	0.0183	0.185
Fissure Healed	82 (93.2%)	163 (98.8%)	0.0686	N/A

DISCUSSION

The overall wound complication rate was higher than expected, though some studies have shown even higher infection rates based on specific techniques. Our study is limited by its retrospective nature, particularly with regard to the decision-making process for choosing between the two techniques. While we did not formally examine postoperative incontinence, the incidence was less than 2.5% in both groups.

CONCLUSION

Open and closed sphincterotomy have been shown to be equally efficacious with regard to fissure healing rate. Our study shows that the open technique appears to have a significantly higher wound complication rate, including higher incidence of surgical site infection and delayed wound healing. While the choice of technique is sometimes dictated by the findings at the time of surgery, the closed sphincterotomy appears to be the preferred technique.

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