

Is Single-Incision Pediatric Endo-surgery Appendectomy (SIPESA) Performed By Resident Safe?

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Authors Admit that they have no Conflict of Interest

BACKGROUND

Most centers advocate laparoscopy for treating acute appendicitis for better cosmo- ses Conventional laparoscopic appendectomy (CLA) and SIPESA are the most used techniques. Many comparative studies, systematic review and pooled analysis demonstrated that single incision laparoscopic appendectomy (SILA) is comparable to CLA for acute appendicitis in adults.

AIM

To study the outcome, safety, and efficacy of SIPESA performed by residents versus CLA in two training centers

MATERIAL & METHODS

A comparative retrospective study was conducted at (KFAFH) and PSMMC between January 2011 and July 2018. SIPESA and CLA were performed at KFAFH and PSMMC respectively. Data were collected

MATERIAL & METHODS (continued)

from electronic records of all children below 14 years of age. SIPESA performed through a 1.5 cm umbilical incision.

SIPESA Technique:
Single-incision Medtronic 10 mm port was inserted controlling the mesoappendix by the Hook diathermy /LigaSure TM device for complicated appendicitis. Endo-loops were applied to the base of the appendix. The appendix was retrieved through SIPES port. All patients received IV Paracetamol (15mg/kg q 8h) and IM Tramadol (1mg/kg q8h) postoperatively.

CLA Technique:
A standard approach for ports insertion via Veress needle. Ligation of the appendicular base with endoloops after the division of the mesoappendix with diathermy hook. The appendix was extracted by endobag to protect the wound from contamination. All patients received IV Paracetamol (15 mg/kg q8h) and IV Morphine infusion(10-20 mic/kg/hr) postoperatively. All patients were routinely catheterized before the operation.

Variables:
performing surgeon, MOT, post-operative pain, duration of analgesia, postoperative complications, and LOS. Facial Action Coding System (FACS) for pain assessment in both groups. The collected data was analyzed using SPSS version 22, Chi-square test and One-way ANOVA test were used for the analysis of the data. P-value < 0.05 was considered significant.

RESULTS (324 Patients)

Period	January 2011 to July 2018
US and CT scan abdomen	174 (43%) and 34 (10.5%) patients respectively
187 (58%)	CLA at PSMMC
137 (42%)	SIPESA at KFAFH
120 (64%) of CLA & 87 (63%) of SIPESA	Males
The mean age in CLA & SIPESA	10 years and 9.6 years respectively.
166 (89%) CLA &126 (92%) of SIPESA	Simple appendicitis
21 (11%) CLA &11 (8%) SIPESA	Complicated appendicitis
Residents operated	44 (24%) of CLA
Residents operated	90 cases (66%) SIPESA (P-value < 0.001)
The MOT	78 minutes for CLA
The MOT	93 minutes for SIPESA (P-value < 0.001)
LOS	2.6 days for CLA& 2.8 days for SIPES appendecton
There was no change in analgesia dose, frequency and duration in both groups	
We had a negative appendectomy rate of 10%.	

Complications in SIPESA:

- 3 intra-abdominal collection (2.2%)
- 1 wound infection (0.7%)
- 2 postoperative adhesions (1.5%)

In CLA:

- 5 intra-abdominal collection (2.7%)
- 2 wound infection (1.1%)
- 1 postoperative adhesions (0.5%).

Variables		SIPESA*	CLA*	P value
Gender	Male	63.5%	64%	0.49
	Female	36.5%	36%	
Age (year)		9.6	10	0.12
Performer	Resident	76%	24%	<0.001
Diagnoses	Simple	92%	89%	0.22
	Complicated	8%	11%	
MOT*(minutes)	Resident	93	87	<0.001
Histology	Positive	91%	88%	0.24
	Negative	9%	12%	
Mean LHS(days)	Resident	3.2	3.6	0.13
Overall complication	Resident	4.4%	4.6%	0.26

Post operative complication of SIPES & CLA

Operation	Performing surgeon	Post-Op complication			
		No complication	Intra-abdominal collection	Wound infection	Adhesions
SIPESA	Resident	86 95.6%	2 2.2%	1 1.1%	1 1.1%
CLA	Resident	42 95.4%	1 2.3%	1 2.3%	0 0%

CONCLUSION

We consider SIPESA as one of training model for surgical residents to build up their SIPES experience. The trainees must have basic laparoscopic skills before doing SIPES operations. There is a core group of fundamental skills that can be acquired in the dry and wet laboratory before performing any new procedure. SIPES skills are gained by continuous training in step-leader fashion as in any laparoscopic training program. The MOT of SIPESA is significantly longer than CLA as reported in other publications. There was no significant difference in morbidity and mortality between SIPESA and CLA in keeping with the finding of the other report.

P-value < 0.05 was considered significant.

IN SUMMARY

SIPESA is feasible and safe to be carried out by residents under supervision even for complicated appendicitis with no added morbidity. The technique can be imparted satisfactorily to residents with successful implementation into structured surgical training programs.