

# Laparoscopic stripping ovarian cystectomy in children without use of electrocautery in residual ovarian bed: experience in Chittagong, Bangladesh

Md. Mozammel Hoque<sup>1\*</sup>  
Lutfun Naher Begum<sup>2</sup>  
Md. Jafrul Hannan<sup>1</sup>

<sup>1</sup>Department of Paediatric Surgery,  
Chattagram Maa-O-Shishu Hospital  
Medical College, Chittagong,  
Bangladesh

<sup>2</sup>Department of Obstetrics &  
Gynaecology, Chattagram Maa-O-  
Shishu Hospital Medical College,  
Chittagong, Bangladesh

\*Correspondence to:

Md. Mozammel Hoque  
Associate Professor  
Department of Paediatric Surgery  
Chattagram Maa-O-Shishu Hospital  
Medical College  
Agrabad, Chittagong 4100  
Bangladesh  
E-mail: drmozammel\_05@yahoo.com  
Cell: +880-1819817218

## Abstract

**Objective:** Laparoscopic excision has now become the standard treatment option for benign ovarian cysts. Stripping is an effective and popular technique practiced by the surgeons for ovarian cyst excision. Use of electro-cautery in the residual ovarian bed is blamed for the reduction of ovarian reserve. Our experience of laparoscopic stripping technique without use of electro-cautery in the remaining ovarian tissue is described. **Materials and Methods:** From 1 January 2006 to 31 December 2010, 26 cases were considered for laparoscopic stripping ovarian cystectomy. Using mono-polar hook cautery a flap was marked and raised on cyst wall and serous fluid sucked out. A plane was then created between inner and outer linings of the cyst wall, and inner lining peeled off. Warm normal saline wash was then given and the stripped lining was brought out through supra-umbilical port. Patients were followed up at 15 days, 1 month, 3 months, 1 year and then yearly with ultrasonogram at 3 months and 1 year. Patient's age, operative time and outcome, blood loss and complications were studied retrospectively. **Results:** Age ranged from 3.5 to 16 years. Presenting complaints included: abdominal pain (11), abdominal swelling (8) and palpable abdominal lump (7). Average operative time was 40.30 minutes and operative blood loss ranged from 10 to 36 ml. There was no intra or post-operative complication. There was no recurrence of cyst confirmed by ultrasonography at 3 months and 1 year. **Conclusions:** Avoiding use of electro-cautery during ovarian cystectomy by stripping technique can prevent damage and reduction in ovarian reserve.

**Key Words:** Stripping ovarian cystectomy; Laparoscopic ovarian cystectomy; Electrocautery during ovarian cystectomy

## INTRODUCTION

Laparoscopic excision has now become the standard treatment option for benign ovarian cysts including those in children.<sup>1,2,3</sup> Gynecologists as well as the pediatric

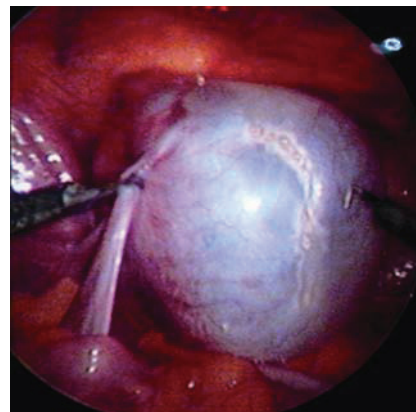
**How to cite:** Hoque MM, Begum LN and Hannan MJ. Laparoscopic stripping ovarian cystectomy in children without use of electrocautery in residual ovarian bed: experience in Chittagong, Bangladesh. *Bang J Endosurg* 2013; 1(1): 26–28.

surgeons are well aware of the necessity of preserving the ovarian tissue during operation obviating the chance of recurrence<sup>3</sup>. The cyst itself can be responsible for reduction in ovarian reserve.<sup>4,5</sup> so also overzealous excision.<sup>6</sup> Various methods of cyst treatment like ultrasound-guided cyst aspiration, fenestration, unroofing are described.<sup>3,7</sup> Stripping is an effective and popular technique practiced by the gynecologists as well as pediatric surgeons for ovarian cyst excision.<sup>4,6,8</sup> Use of electro-cautery and even ultrasonic devices in the residual ovarian bed are blamed for the reduction of ovarian reserve.<sup>8</sup> Our method of laparoscopic stripping technique without use of electro-cautery in the remaining ovarian tissue after stripping is described.

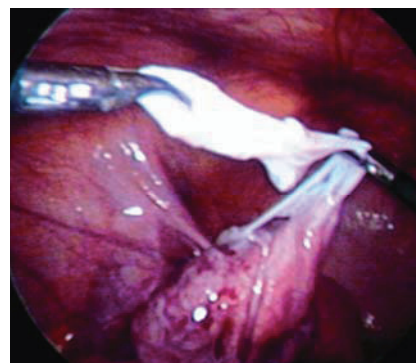
## MATERIALS AND METHODS

From 1 January 2006 to 31 December 2010, 42 children with ovarian cysts were dealt with in the Department of Pediatric Surgery. Three of those were preoperatively diagnosed as endometriotic cysts, 4 as dermoid cysts, 2 as par-ovarian cyst and 2 as complex cysts and thus excluded from this study. Thirty-one cases were considered for laparoscopic stripping ovarian cystectomy. Five neonates who were transfused per-operatively as a precautionary measure were also excluded from the study. Remaining 26 cases were then included and studied retrospectively. The cases with preoperative ultrasonographic findings of single cyst of 5 cm or more in diameter in adnexa with no echogenic material inside and no septa were included in the study. Under general endotracheal anesthesia, catheterized patient was positioned supine with the laparoscope monitor at the foot end of the table. We used 3 ports, supra-umbilical for camera, and one working 5 mm port at each flank. Camera port was 5 mm for small children and 10 mm for older ones. Foot end of the table as well as the affected side was raised for better visualization. After checking the uterus and opposite ovary, the cyst was held with a forceps. Using mono-polar hook cautery a flap was marked on the cyst away from the ovarian tissue (Fig. 1). The flap was then raised and serous fluid sucked out. A plane was then created between inner and outer linings of the cyst wall and inner lining peeled off (Fig. 2). The amount of fresh blood that was oozed in the operative field was measured in each case after sucking and collecting in a clean container. Normal saline (warm) wash then given and the stripped lining brought out through supra-umbilical port. Ports were then closed keeping a drain for couple of days. Patients were followed up at 15 days, 1 month, 3 months, 1 year and then yearly. Ultrasonogram

was done during 3 months and 1 year follow-up. "Ethical review committee for thesis and research, Chattagram Maa-O-Shishu Hospital Medical College" has given permission to conduct this study. Age, operative time and outcome, blood loss and complications were recorded.



**Figure 1:** Marking the flap on cyst wall using hook cautery



**Figure 2:** Inner lining of cyst stripped off

## RESULTS

Age ranged from 3.5 to 16 years (mean  $10.40 \pm 3.51$ ). Presenting complaints included abdominal pain, abdominal swelling and palpable abdominal lump (Table 1). Mean operative time was  $40.30 \pm 7.89$  min ranging from 25 to 55 minutes. Amount of blood loss ranged from 10 to 36 ml (mean  $26.30 \pm 6.60$ ) and amount of sero-sanguinous fluid collected in the drainage bag ranged from 30 to 70 ml (mean  $43.85 \pm 11.85$ ). There was no intra-operative or immediate post-operative complication. Follow up period ranged from 3 months to 4 years. There was no recurrence of cyst in the operated ovary confirmed by ultrasonography at 3 months and 1 year. One patient developed cyst in the opposite ovary 2 years after laparoscopy. One patient later got married and conceived and delivered a healthy baby.

**Table 1:** Age and presentation (*n* = 26)

Age	1–5 years	5–10 years	10–16 years	Total
Presentation	2	4	5	11
	0	2	6	8
	0	2	5	7
	2	8	16	26

## DISCUSSION

Simple cysts in infancy and childhood are virtually benign<sup>4,7</sup> are vast majority in all age groups of women.<sup>9</sup> Majority of these benign cysts resolve spontaneously and a minor percentage requires surgical treatment.<sup>4,7</sup> Cysts of 5 cm or more in diameter even if asymptomatic are advised for surgery due to the risk of torsion, haemorrhage, rupture with peritonitis, adhesion with intestinal obstruction etc.<sup>7,9,10</sup> Surgery can be done by laparotomy or laparoscopy and laparoscopic stripping technique is now widely practiced.<sup>6,7</sup> Surgery reduces the ovarian reserve by excessive removal of ovarian tissue<sup>4</sup> which is avoidable by a careful surgeon or damage by use of electro-cautery.<sup>11,12</sup> Seeing our gynaecologist colleagues who have been practicing stripping technique in open ovarian cystectomy, we have been doing the same laparoscopically. Except in neonatal cases, we have observed that the blood loss during this operation is not significant if the ovarian bed was left as it is after stripping. The oozing stops spontaneously after a while following wash with warm saline. The fluid collected in the drainage bags were blood tinged serous fluid, mostly the saline that was put inside during wash. We have used mono-polar cautery well away from ovarian tissue only to mark a flap on the cyst wall. We do not use any type of cautery on residual raw ovarian bed so there is no chance of injury inflicted by electro-cautery on the remaining ovarian tissue.

## CONCLUSIONS

Avoiding use of electro-cautery during ovarian cystectomy by stripping technique can prevent damage and reduction in ovarian reserve.

## DISCLOSURE STATEMENT

No financial or any other conflict of interest exists.

## References

1. Bristow RE, Nugent AC, Zahurak ML, Khouzhami V, Fox HE. Impact of surgeon specialty on ovarian-conserving surgery in young females with an adnexal mass. *J Adolesc Health X* 1996;39:411–6.
2. Nagele F and Magos AL. Combined ultrasonographically guided drainage and laparoscopic excision of a large ovarian cyst. *Am J Obstet Gynecol* 1996;175:1377–8.
3. Arena F, Romeo C, Castagnetti M, Scalfari GF, Cimador M, Impellizzeri P et al. Is the stripping technique a tissue-sparing procedure in large simple ovarian cysts in children? *J Pediatr Surg* 2008;43:1353–7.
4. Chiodo I, Somigliana E, Riboldi P, Cecchini G, Di Blasio AM, Viganò P. Laparoscopic excision of ovarian cysts does not result in antiovarian humoral autoimmunity. *Fertil Steril* 2005;84:1772–4.
5. Maneschi F, Marasa L, Incandela S, Mazzaresse M, Zupi E. Ovarian cortex surrounding benign neoplasms: a histologic study. *Am J Obstet Gynecol* 1993;169:388–93.
6. Muzii L, Bianchi A, Croce C, Mancini N, Panici PB. Laparoscopic excision of ovarian cysts: is the stripping technique a tissue-sparing procedure? *Fertil Steril* 2002;77:609–14.
7. Brandt ML, Helmrath MA. Ovarian cysts in infants and children. *Semin Pediatr Surg* 2005;14:78–85.
8. Li CZ, Liu B, Wen ZQ, Sun Q. The impact of electrocoagulation on ovarian reserve after laparoscopic excision of ovarian cysts: a prospective clinical study of 191 patients. *Fertil Steril* 2009;92:1428–35.
9. Bottomley C, Bourne T. Diagnosis and management of ovarian cyst accidents. *Best Pract Res Clin Obstet Gynaecol* 2009;23:711–24.
10. Cass DL. Ovarian torsion. *Semin Pediatr Surg* 2005;14:86–92.
11. Somigliana E, Ragni G, Benedetti F, Borroni R, Vegetti W, Crosignani PG. Does laparoscopic excision of endometriotic ovarian cysts significantly affect ovarian reserve? Insights from IVF cycles. *Hum Reprod* 2003;18:2450–3.
12. Fedele L, Bianchi S, Zanconato G, Bergamini V, Berlanda N. Bipolar electrocoagulation versus suture of solitary ovary after laparoscopic excision of ovarian endometriomas. *J Am Assoc Gynecol Laparosc* 2004;11:344–7.