Journal of Paediatric Surgeons of Bangladesh (2017) Vol. 8 (2): 52-57
Official organ of the Association of Paediatric Surgeons of Bangladesh

Journal of Paediatric Surgeons of Bangladesh

*Original Article*

# EVALUATION OF POST-OPERATIVE OUTCOME IN DIFFERENT SURGICAL MANAGEMENT FOR BENIGN ADNEXAL MASS IN CHILDREN

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## Abstract:

**Background: An adnexal mass in pediatric age group is a rare entity. The differential diagnosis includes ovarian lesions, tubal or paratubal lesions, non-gynecologic lesions, and lesions related to infection or pregnancy. Presenting symptoms vary and may include acute abdominal pain, mass effect, and less commonly, precocious puberty and vaginal bleeding. Most of these lesions represent benign pathology, but malignant lesions are also a possibility, and appropriate surgical and postoperative management is essential. It is important for clinicians caring for these patients to understand the differential diagnosis of an adnexal mass, to facilitate correct management (whether surgical or nonsurgical) and necessary referrals where appropriate. Timely management can lessen initial morbidity & preserve fertility in future..**

**Objective: The overall objective of this study is to evaluate post-operative outcome in different surgical management for benign adnexal mass in children.**

**Materials and Methods: We are conducting a prospective observational study with the intention to observe the postoperative periods of 30 purposively selected patients having surgical management for adnexal mass in multiple centres in Dhaka city, over a period of 24 months from January, 2017 to December, 2018. Children upto 14 years of age with benign adnexal mass are planned to be selected as study subjects. After detailed history taking and thorough physical examination, all children are subjected to investigate for Blood for TC, DC, Hb%, CXR PA view, Urine R/M/E, Serum creatinine, USG of whole abdomen with pelvis special attention towards uterus and adnexae, áFP, âHCG, LDH, CA-125, CT scan of whole abdomen preoperatively. Information on post operative complications eg, post operative pain by age appropriate pain scale 0, 3rd and 8th POD, vomiting, wound infection, wound dehiscence and wound C/S report (if infection occurs) documented. Length of hospital stay is noted. Biopsy report of excised adnexal mass is reviewed. Informed written consent from parents or legal guardian is taken after describing the study objectives. Ethical clearance has been sought from the Ethical Committee of Dhaka Medical College and CMH, Dhaka.**

**Results: Total 15 patients are studied till now. From this limited data we have observed that there has been apparently minimum difference among different surgical management for benign adnexal mass regarding postoperative outcome.**

**Conclusion: This is an on-going study. Specific conclusion could not be drawn at this early stage.**

**Key words: Benign adnexal mass, laparoscopic management of adnexal mass, post-operative outcome, under 14 girls**

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## Introduction:

Adnexal masses are uncommon occurrences in children.The estimated incidence of adnexal masses in the adolescent population is approximately 2.6 per 100,000 girls younger than 18 years of age[1]. Although rare, they can be malignant and fatal. An estimated ten percent of pediatric ovarian masses are found to be malignant[2, 3]. Gynecological malignant conditions constitute approximately 3% of all types of cancer in children. The commonest gynecologic neoplasm found in the girl-child is of ovarian origin constituting one per cent of all childhood-malignancies[4]. Eight per cent of abdominal tumors in children are of ovarian origin[4]. The clinical signs and symptoms of ovarian masses are usually non-specific. However, variable symptoms such as acute or chronic lower

abdominal pain, increased abdominal girth resulting either from complications such as torsion or hemorrhage inside the cysts or because of pressure on adjacent anatomic structures may occur [5]. Early management may be necessary to preserve fertility.

Adnexal mass represent a range of pathologies ranging from highly aggressive malignant tumors to benign cysts. In the pediatric age group, ovarian tumors may be one of three:

1. Physiologic cysts
2. Benign tumors
3. Malignant neoplasms

Epithelial cysts and benign teratomas are the most common benign tumors and germ cell tumors are the most common malignant tumors.

Pelvic ultrasound is the best imaging modality to evaluate the female adnexa (ovary and fallopian tube). CT scan is generally reserved for lesions that are highly suspicious for malignancy, with the additional benefit of evaluation of possible nodal and/or metastatic disease.[6]

In addition to imaging, laboratory studies may also assist in diagnosis, although they are nonspecific. Tumor markers, including beta-human chorionic gonadotropin (â-hCG), alpha fetoprotein (AFP), lactate dehydrogenase (LDH), Inhibin, carcinoembryonic antigen (CEA), cancer antigen 125 (CA 125), and cancer antigen 19–9 (CA 19–9) can be obtained.[7]

The conservative approach to the management of ovarian cysts is based on the low rate of malignancy and the high rate of functional cysts and benign germ cell tumors. Recurrent observation is recommended as an initial therapy. Indications for surgical intervention include cysts larger than 05 cm, persistent complex masses, acute symptoms, or based on radiologic or clinical criteria. Malignant lesions will be excluded depending on clinical presentation, imaging stady and tumor marker assay.

Operative management of adnexal masses in children can be performed via laparotomy or minimally invasive laparoscopic techniques. If an ovarian malignancy is suspected preoperatively, laparotomy is recommended, to facilitate complete surgical staging. Cystectomy is performed by incising the ovary on the antimesenteric portion of the ovary. Blunt dissection separates the cyst from the ovarian capsule, allowing the cyst wall to be removed in toto.[8]

Though laparoscopic surgery is the accepted gold standard for management of adnexal masses, benign ovarian neoplasms are treated via laparotomy by many gynecologists and pediatric surgeons. In cases of malignancy, the recent literature is controversial.[9]

The laparoscopic approach for elective surgical management of ovarian masses presumed to be benign is associated with lower postoperative morbidity and shorter recovery time and is preferred to laparotomy in suitable patients. It is cost-effective because of the associated earlier discharge and return to work.In the presence of large masses with solid components (for example large dermoid cysts) laparotomy may be appropriate.[10]

A collaborative approach, incorporating gynecologic surgeons as well as the pediatric surgeons who commonly care for this unique patient population, is paramount to the accomplishment of these goals.

**Materials and methods:**

We are conducting a prospective observational study with the intention to observe the postoperative outcome of 30 purposively selected patients having surgical management for adnexal mass in the Department of Pediatric surgery, DMCH, Department of Gynaecology & Obstetrics, DMCH, Department of Pediatric Surgery, BSMMU**,** Department of Pediatric Surgery, CMH, Dhaka**,** and Department of Gynaecology & Obstetrics, CMH, Dhaka, over a period of 24 months from January, 2017 to December, 2018. Children up to 14 years of age with benign adnexal mass are planned to be selected as study subjects.

After detailed history taking and thorough physical examination, all children are subjected to investigate for Blood for TC, DC, Hb%, CXR PA view, Urine R/M/E, Serum creatinine, USG of whole abdomen with pelvis special attention towards uterus and adnexae, $\alpha$FP, $\beta$HCG, LDH, CA-125, CT scan of whole abdomen preoperatively. Patients with probable benign adnexal mass planned for surgical management are taken as study subjects.

Surgical management have two general approaches, open and laparoscopic. Laparotomy can be done by a pfannenstiel, inferior paraumbilical or lower midline incision. Three ports are done in laparoscopic approach. Primary port site is in umbilicus and two secondary port site depends on site of adnexal mass. Detailed operation note is documented and preoperative pictures are taken.

Information on post operative complications eg, post operative pain by age appropriate pain scale 0, 3rd and 8th POD, vomiting, wound infection, wound dehiscence and wound C/S report (if infection occurs) documented. Length of hospital stay is noted. Biopsy report of excised adnexal mass is reviewed.

**Results:**

Total 15 patients are studied till now, 14 patients undergone laparotomy and only one patient had laparoscopic ovarian cystectomy. Age of patients range from 3years to 14 years. Benign adnexal mass is more commonly seen in patients around 11 to 12 years of age and located on left side in the study population. No patient had bilateral involvement. Mean duration of procedures in case of laparotomy was 83min and in case of laparoscopy it is 70 min. Mean Postoperative pain scale score on o, 3rd and 8th POD were 10, 4 and 0 respectively. Only one patient had lower midline incision and she was also the only patient who had moderate wound infection. Her ASEPSIS score on 3rd and 7th POD was 37 and 22 respectively. None of the patient had wound dehiscence, postoperative vomiting and cough. Cosmesis is good in open surgical approach and excellent in laparoscopic approach. Average length of hospital stay in patients having laparotomy is 4-5days and 2 days in case of laparoscopy patient.

**Table-I**

*The ASEPSIS wound score*

| Criterion | Points |
|---|---|
| • Additional treatment | 0 |
| • Antibiotics for wound infection | 10 |
| • Drainage of pus under local anaesthesia | 5 |
| • Debridement of wound under general anaesthesia | 10 |
| • Serous discharge[a] | Daily 0– 5 |
| • Erythema[a] | Daily 0–5 |
| • Purulent exudate[a] | Daily 0–10 |
| • Separation of deep tissues[a] | Daily 0–10 |
| • Isolation of bacteria from wound | 10 |
| • Stay as in-patient prolonged over14 days as result of wound infection | 5 |

a. Scored for 5 of the first 7 days only, the remainder being scored if present in the first 2 months.

• Range- 0 -70

0-10 – Satisfactory healing

11-20 – Disturbance of healing

21-30- Minor wound infection

31-40- Moderate wound infection

40 – Severe wound infection

**Table-II**

*The multidimensional visual analog scale for cosmesis*

| Criterion | Poor | Moderate | Good | Excellent |
|---|---|---|---|---|
| Pigmentation | 1 | 2 | 3 | 4 |
| Vascularity | 1 | 2 | 3 | 4 |
| Acceptability | 1 | 2 | 3 | 4 |
| Observer comfort | 1 | 2 | 3 | 4 |
| Contour | 1 | 2 | 3 | 4 |

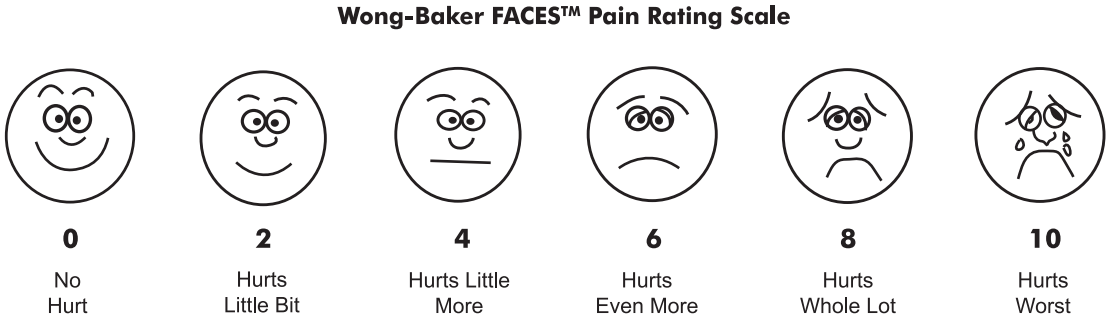


**Fig.-1**

**Table-III**

*Face, Legs, Activity, Cry, Consolability scale or FLACC scale*

| Criterion | Score 0 | Score 1 | Score 2 |
|---|---|---|---|
| Face | No particular expression or smile | Occasional grimace or frown, withdrawn, uninterested | Frequent to constant quivering chin, clenched jaw |
| Legs | Normal position or relaxed | Uneasy, restless, tense | Kicking, or legs drawn up |
| Activity | Lying quietly, normal position, moves easily | Squirming, shifting, back and forth, tense | Arched, rigid or jerking |
| Cry | No cry (awake or asleep) | Moans or whimpers; occasional complaint | Crying steadily, screams or sobs, frequent complaints |
| Consolability | Content, relaxed | Reassured by occasional touching, hugging or being talked to, distractible | Difficult to console or comfort |

**Table-IV**

*Preliminary data from the 14 laparotomy cases*

| No. | Age | Duration | Post-op. pain scale | | | ASEPSIS | | Cosmesis Length | |
|---|---|---|---|---|---|---|---|---|---|
| | | of procedure | 0 | 3rd | 8th | 3rd | 7th | of hospital stay | |
| 1. | 6yr | 80min | 8 | 4 | 0 | 0 | 0 | 12 | 5days |
| 2. | 14yr | 100min | 10 | 4 | 0 | 0 | 0 | 13 | 4days |
| 3. | 9yr | 90min | 10 | 4 | 0 | 0 | 0 | 14 | 3days |
| 4. | 11yr | 85min | 10 | 6 | 2 | 0 | 0 | 10 | 3days |
| 5. | 12yr | 90min | 10 | 6 | 0 | 2 | 0 | 10 | 3days |
| 6. | 9yr | 70min | 8 | 4 | 0 | 0 | 0 | 14 | 3days |
| 7. | 12yr | 75 min | 10 | 6 | 0 | 0 | 0 | 16 | 4days |
| 8. | 11yr | 65min | 8 | 4 | 0 | 0 | 0 | 12 | 3days |
| 9. | 3yr | 95min | 8[a] | 4[a] | 0[a] | 0 | 0 | 12 | 5days |
| 10. | 12yr | 80min | 10 | 4 | 0 | 5 | 0 | 14 | 4days |
| 11. | 14yr | 120min | 10 | 8 | 4 | 37 | 22 | 8 | 4days |
| 12. | 11yr | 80min | 10 | 4 | 0 | 0 | 0 | 14 | 14days |
| 13. | 9yr | 75min | 8 | 4 | 0 | 4 | 0 | 14 | 4days |
| 14. | 8yr | 60min | 10 | 6 | 0 | 0 | 0 | 16 | 4days |

a. Post-operative pain scale according to FLACC scale

**Table-V**

*Preliminary data from the 01 laparoscopy case*

| No. | Age | Duration | Post-op. pain scale | | | ASEPSIS | | Cosmesis Length of |
|---|---|---|---|---|---|---|---|---|
| | | of procedure | 0 | 3rd | 8th | 3rd | 7th | hospital stay |
| 1. | 14yr70min | 6 | 0 | 0 | 0 | 0 | 18 | 2days |

**Discussion:**

According to several guidelines laparoscopic management is the gold standard for adnexal mass in premenopausal women, but for the pediatric patients from neonate to adolescents no such standardization is formulated. Such study has not been done in our population context also. Feasibility and operability of adnexal mass in children in our country perspective is yet unknown. Evaluating the post-operative events following surgical management will give an insight to this issue.

Most of the patient undergone open approach which clearly depicts that laparoscopic approach is not preferred by surgeons while there is available equipment and expertise. The study is conducted in tertiary centers where laparoscopic facility, multidisciplinary team is on hand. Moreover other laparoscopic procedure e.g. laparoscopic appendectomy, laparoscopic cholecystectomy, laparoscopic approach for undescended testis etc is routinely done. The trend of such affinity is unknown and yet to be explored. The result of our study until now has not demonstrated any difference in outcome in the specified age group. So up to now the available data is compatible with the various data seen in other studies. In our study, it is very early to comment on the results.

**Conclusion:**

This is an on-going study. Definite conclusion could not be drawn at this preliminary stage. Many literatures have convincingly demonstrated the superiority of laparoscopic approach in benign adnexal mass regarding postoperative outcome. But such studies have not been done before in our

country. So the final comment can only be made after proper analysis and interpretation of all the data obtained at the conclusion of the study.

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