The other innovative diagnostic category is the maximal mural thickness (MMT) of the appendix, defined as the maximum distance from the hyperechoic luminal interface to the outer hyperechoic line (22) (23) (26). We believe that further studies concerning MMT measurement will overcome the conflict in detecting simple edematous appendiceal tissue from the inflamed.

MANAGEMENT OF ADNEXAL MASSES IN CHILDREN AND ADOLESCENTS: A RETROSPECTIVE ANALYSIS OF A 25-YEAR EXPERIENCE

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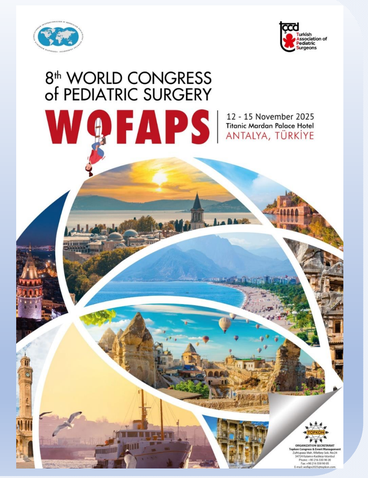


INTRODUCTION

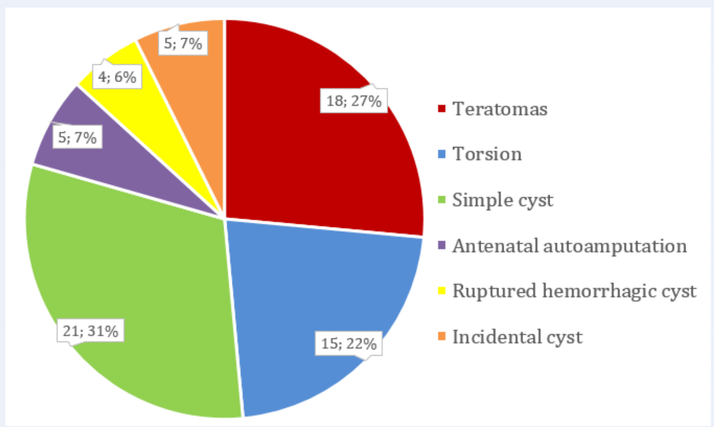
Adnexal masses in children and adolescents are rarely encountered and encompass a broad spectrum of ovarian lesions. Possible origin of etiology includes simple or complicated functional cysts, adnexal torsion, benign and malignant neoplasms. These adnexal masses often demonstrate a silent occurrence with slow progression, which makes early diagnosis difficult, thus requires prompt clinical evaluation and diagnostic workup.

Unnecessary ovarian surgery performed during childhood may jeopardize future fertility due to the removal of normal ovarian tissue or adhesion formation. Oophorectomy may also result in premature ovarian failure, early menopause, and associated risks such as cognitive impairment, osteopenia, impaired sexual health, and increased risk of cardiovascular disease.

Surgical intervention for adnexal masses represents an incidence of 2.6 cases per 100,000 in the pediatric population. Historically, all ovarian masses detected in infants, children, and adolescents were surgically removed together with the ovary. The majority of adnexal masses in children are benign and self-resolving ovarian cysts. Recent published studies advocate ovarian-sparing procedures in minimizing the risk of an unnecessary oophorectomy, contributing to preservation of long-term fertility.

METHODS

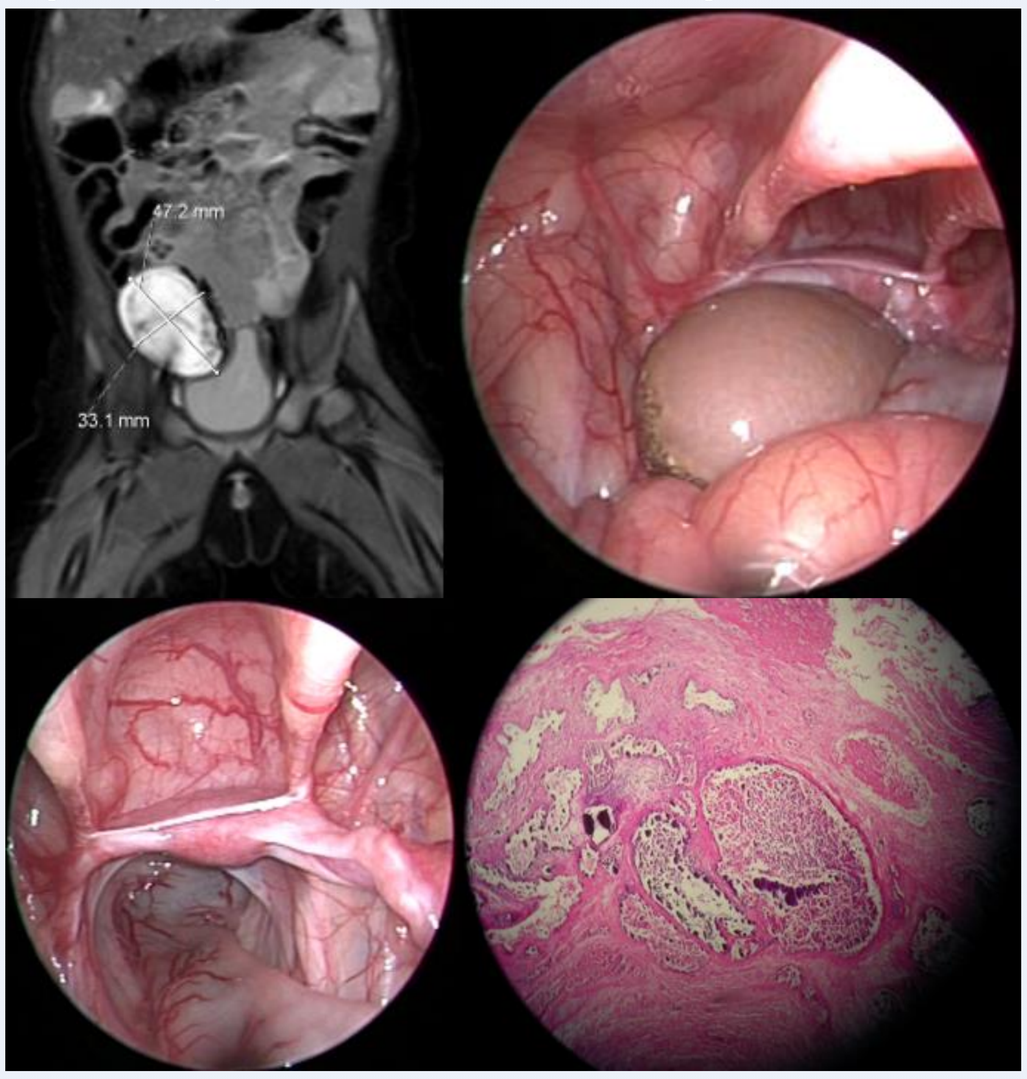
- **The study was approved by our local ethics committee on 10.04.2025.**
- **The study is a retrospective analysis of consecutive files of 81 children under the age of 18, with diagnosis of adnexal masses. Twelve patients were excluded from the study.**
- **A total of 69 eligible patients, operated between 1999 and 2024, are evaluated.**
- **Differences based on demographic, clinical evaluation, diagnostic workup, choice of surgical approach, and histopathological outcomes were evaluated.**



RESULTS

Auto amputation: 5 cases

- **A left sided auto amputated ovarian cyst was present in two and right sided in three cases.**
- **Mean age was 0.4±0.3 years. Size: smallest 3.2 x 2.5 x 3.0 cm and largest 8 x 6 x 3.5 cm**



Ruptured hemorrhagic cyst: 4 cases

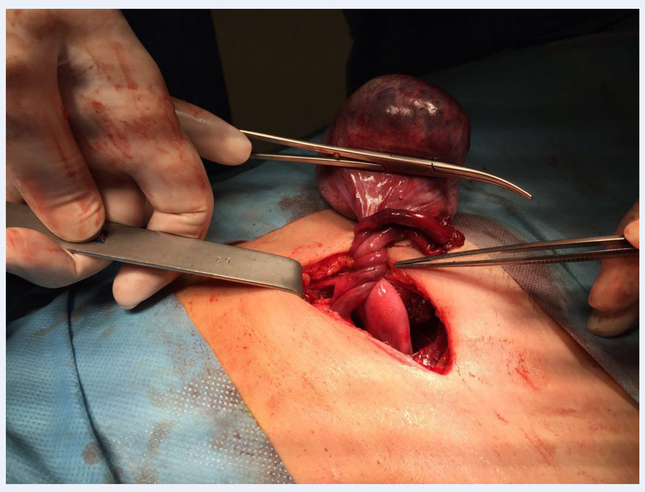
- **A left sided ruptured hemorrhagic ovarian cyst was present in one, right sided in three cases.**
- **Mean age was 13.9±6 years.**
- **An ovary sparing cyst resection were performed in three cases.**

Incidental cyst: 5 cases

- **Mean age was 12.4±7.2 years. Size: smallest 5x5 cm and largest 5x7 cm**
- **An ovary sparing cyst resection were performed in all cases.**

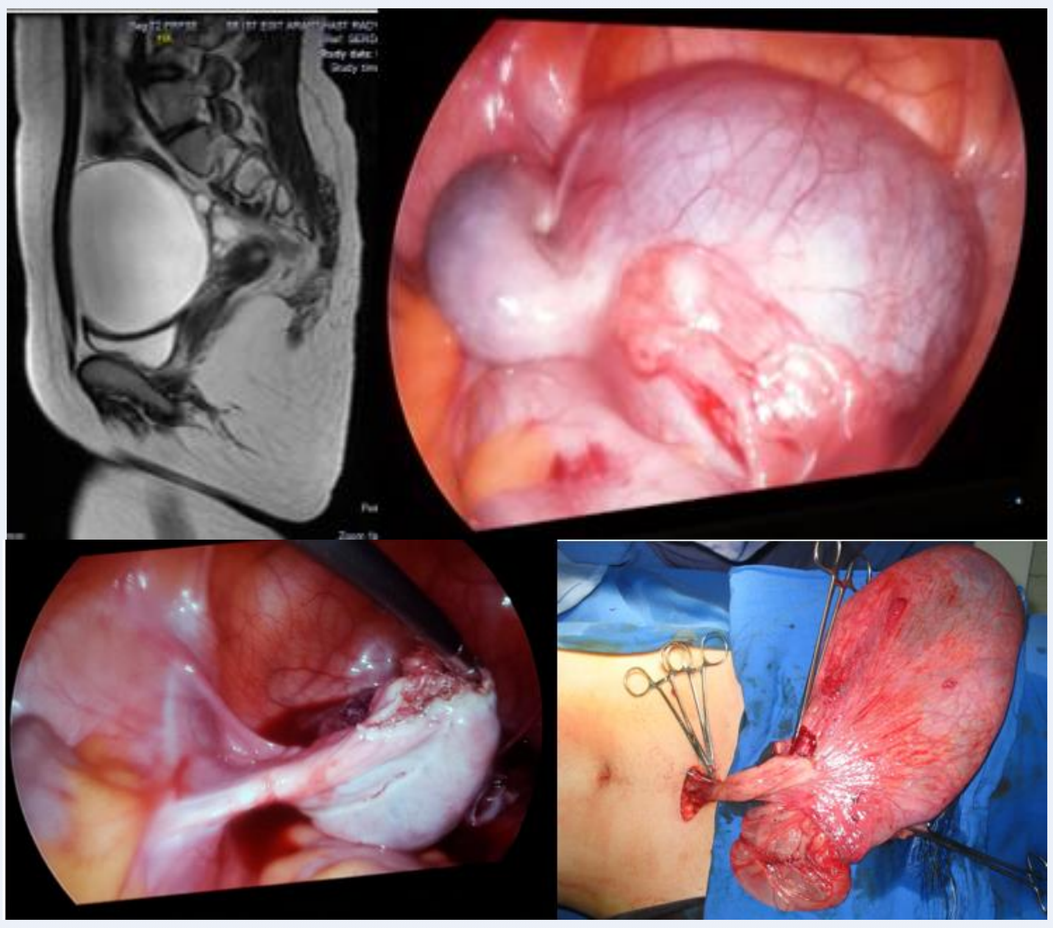
Adnexal torsion: 15 cases

- **A left sided ovarian torsion was present in five and right sided in ten cases.**
- **Mean age was 13.8±4.7 years.**
- **A cystic component (1 x 1 cm – 12 x 7 cm) was present in seven patients.**
- **Nine cases were managed with detorsion only.**



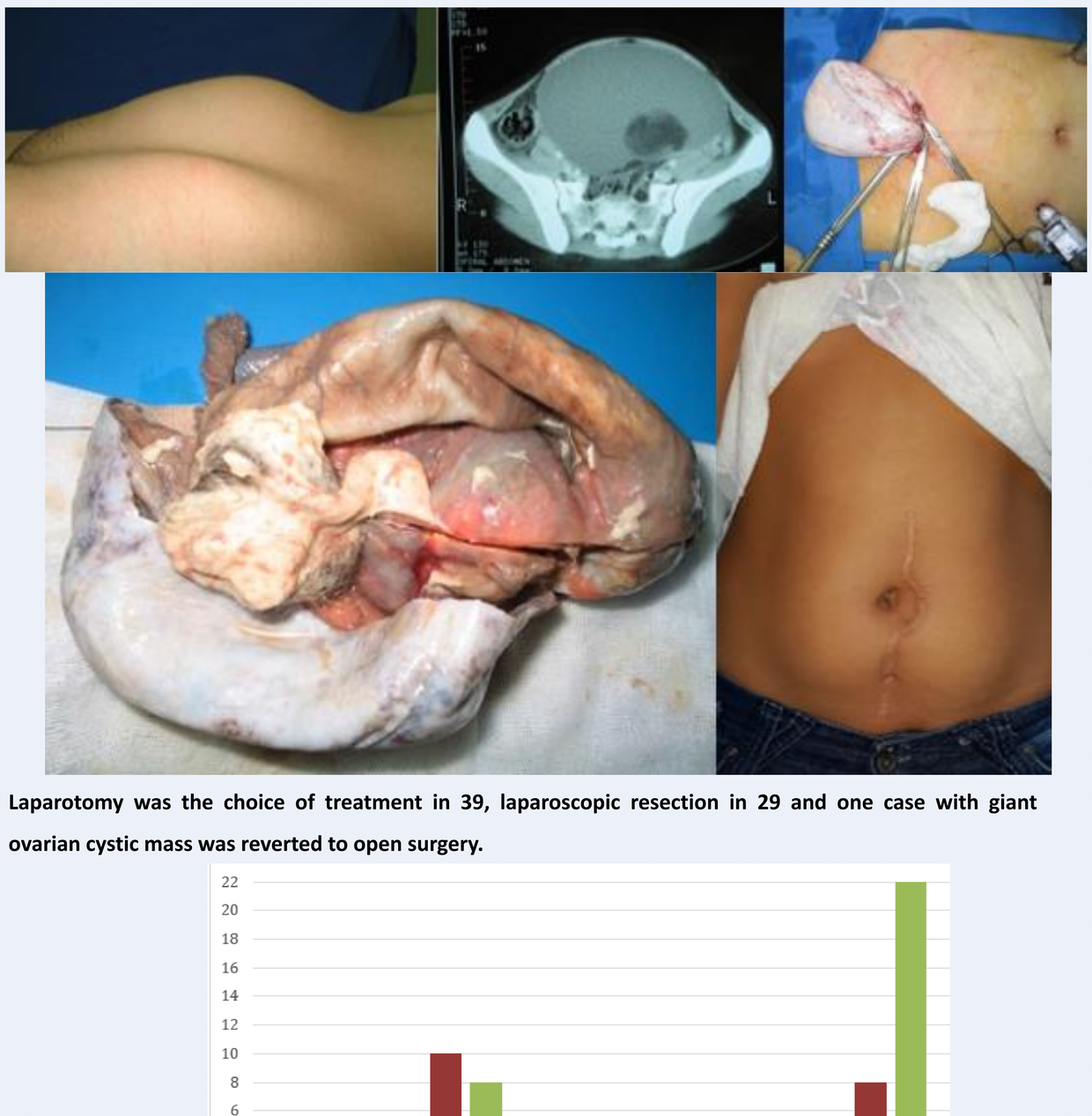
Simple Ovarian Cysts: 21 cases

- **A left sided ovarian cyst was present in 10, right sided in nine, and bilateral in two cases.**
- **Mean age was 10±8 years. Size: smallest 5 × 5 cm and largest 18 × 15 cm**
- **An ovary spearing surgery was performed in 20 patients.**



Teratoma: 19 cases

- **A left sided ovarian cystic mass was present in ten, right sided in eight, bilateral in one cases.**
- **Mean age was 12.7±3.3 years. Size: largest 22 × 21 × 8 cm**



- **Laparotomy was the choice of treatment in 39, laparoscopic resection in 29 and one case with giant ovarian cystic mass was reverted to open surgery.**

CONCLUSION

Although existing data supports ovary sparing surgery for benign ovarian neoplasms, published research indicates that up to 50% of pediatric patients with benign tumors undergo an unnecessary oophorectomy. A retrospective analysis of 819 patients from 10 children's hospitals in the UK found that unnecessary oophorectomies for benign disease were more likely to occur when pediatric surgeons treated patients compared with pediatric and adolescent gynecologists. One clinical study demonstrated significantly higher ovarian preservation rates when gynecologists performed surgeries compared with pediatric surgeons.

Over this 25-year review, there has been a clear shift toward MIS and ovary-sparing approach in the management of benign ovarian disease. The overall ovarian preservation rate, however, was 64.1% in our series, which is lower than desired.

In pediatric ovarian surgery, conservative management is advocated and must be prioritized to preserve ovarian tissue as much as possible to maximize future reproductive potential, with surgical intervention reserved for cases that are complicated or suspected to be malignant.

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