Who Loses an Ovary?
A Study of Surgically Treated Ovarian Lesions in Children and Adolescents

Ayoung Kang[1,2] and Soo-Hong Kim[1,2]*

[1]Division of Pediatric Surgery, Pusan National University Children's Hospital, Yangsan, Korea

[2]Department of Surgery, School of Medicine, Pusan National University, Busan, Korea

Pusan National University Children's Hospital

Introduction

- Ovarian lesions requiring surgery are rare in children and adolescents, and their diverse pathology and clinical presentations complicate diagnosis and management.
- Despite being children and adolescents, some patients inevitably undergo oophorectomy when ovary preservation is not feasible.

Purpose

- To identify the factors associated with ovary preservation or loss in pediatric patients undergoing surgery for ovarian lesions.

Method

- Retrospective chart review
- Patients under 18 years old undergone ovarian surgery at the Department of Pediatric Surgery in Pusan National University Children's Hospital between 2008 and 2024

  → 116 patients included
- 3 age groups:

  Group 1. infant (≤12 months)

  Group 2. children (<12 years or premenarcheal)

  Group 3. adolescent (>12 years or postmenarcheal)

  → Clinical features and surgical outcomes were compared.

  → Risk factors for oophorectomy were analyzed.

Results

- m/c pathology: germ cell tumor (58.6%)
- Age effect: ↑ ovary-sparing rate with age (41.7%, 42.1%, 76.6%; p=0.001).
- Torsion in 31% → more abdominal pain/nausea and lower preservation (37.1% vs 64.2%; p=0.006).
- Borderline to malignant tumors (8.6%) were larger, marker-positive, all required oophorectomy.
- Oophorectomy linked with younger age, larger tumors, torsion, and malignancy

Conclusion

- Oophorectomy remains frequent in infants, torsion cases, and tumors with malignant potential.
- Early recognition and prompt surgical management are critical to reduce unnecessary oophorectomy and maximize ovarian preservation.

COI Disclosure

- We have no financial relationships to disclose.

Figure 1. Ovarian tumor pathology by WHO 2020 classification

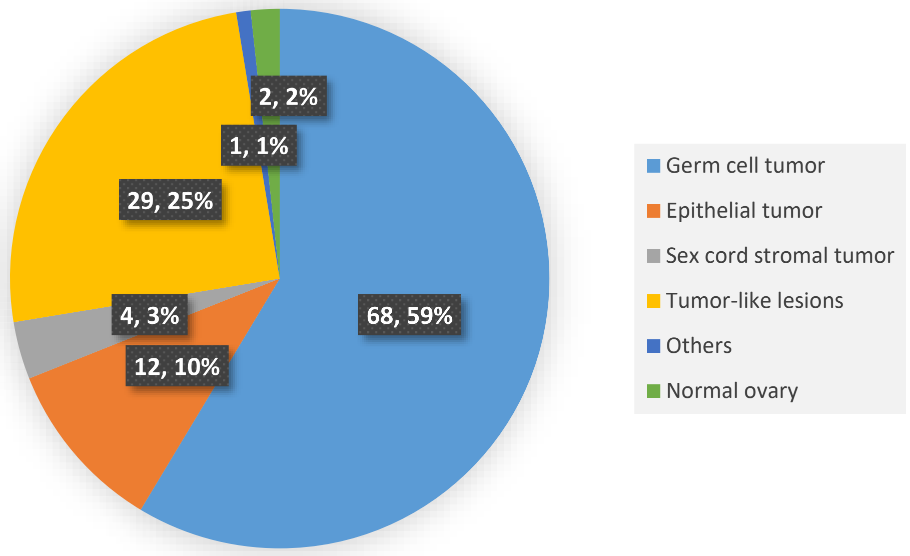

Table 1. Clinical features by age group

	Group 1. infant (n=12)	Group 2. children (n=57)	Group 3. adolescent (n=47)	P-value
Age (Y)	0.27 (7D - 8M)	8.49 (17M - 11Y)	14.31 (12Y - 16Y)	0.000
Diagnosis (n=114) †				0.000
Cyst	10 (83.3%)	7 (12.7%)	12 (25.5%)	
Germ cell tumor	2 (16.7%)	45 (81.8%)	22 (46.8%)	
Other tumor	0	3 (5.5%)	13 (27.7%)	
Torsion	6 (50.0%)	20 (35.1%)	9 (19.1%)	0.061
Borderline to malignant	0	8 (14.0%)	2 (4.3%)	0.111
Ovary-sparing operation	5 (41.7%)	24 (42.1%)	36 (76.6%)	0.001
Laparoscopic operation	6 (50.0%)	32 (56.1%)	39 (83.0%)	0.007
Emergency operation	2 (16.7%)	26 (45.6%)	16 (34.0%)	0.133
Tumor size (cm)	5.53 (3.0 - 12.0)	7.44 (2.0 - 24.0)	8.14 (1.8 - 25.0)	0.458

† 2 patients with normal ovaries were excluded.

* Data is presented as mean (min - max) or n (%).

Table 2. Clinical features by ovary-sparing surgery

	Ovary-sparing surgery (n=65)	Oophorectomy or salpingo-oophorectomy (n=51)	P-value
Age (Y)	11.42 (5D - 16Y)	8.18 (5D - 15Y)	0.000
Symptom			
Abdominal pain	39 (54.2%)	33 (64.7%)	0.373
Palpable mass	3 (4.6%)	12 (23.5%)	0.003
Abdominal distension	4 (6.2%)	11 (21.6%)	0.015
Nausea and vomiting	18 (27.7%)	12 (23.5%)	0.386
Precocious puberty	5 (7.7%)	4 (7.8%)	0.620
Abnormal menstruation	7 (10.8%)	1 (2.0%)	0.064
Image findings			
Septation	17 (39.5%)	26 (53.1%)	0.006
Free fluid collection	11 (19.0%)	20 (40.8%)	0.012
Solid component	38 (62.3%)	27 (54.0%)	0.245
Sedimentation in the cyst	14 (24.1%)	14 (28.6%)	0.382
Tumor size (cm)	5.92 (1.8 - 25.0)	9.58 (2.0 - 25.0)	0.000
Elevated serum tumor marker			
b-hCG (n=52)	0 (n=21)	2 (6.5%) (n=31)	0.351
aFP (n=55)	1 (4.3%) (n=23)	8 (25.0%) (n=32)	0.042
CA 19-9 (n=55)	10 (27.0%) (n=37)	5 (27.8%) (n=18)	0.597
CA 125 (n=57)	2 (5.1%) (n=39)	9 (50.0%) (n=18)	0.000
CEA (n=21)	0	0	1.000
Diagnosis (n=114) †			0.230
Cyst	17 (26.2%)	12 (24.5%)	
Germ cell tumor	42 (64.6%)	27 (55.1%)	
Other tumor	6 (9.2%)	10 (20.4%)	
Torsion	13 (20.0%)	22 (43.1%)	0.006
Emergency operation	20 (30.8%)	24 (47.1%)	0.055
Laparoscopic operation	55 (84.6%)	22 (43.1%)	0.000
Borderline to malignancy	0	10 (19.6%)	0.000

† 2 patients with normal ovaries were excluded.

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