Surgical Treatment of Adolescent Breast Disorders: Institutional Experience and National Trends

Background
- Adolescent breast disorders comprise a unique subset of breast disorders as a whole, and have a different focus of concerns than adult breast diseases
- While the majority of adolescent breast disorders are benign in nature, their surgical treatments are not without potential for morbidity and may require multiple operations
- Proper patient counseling is especially important for adolescent breast surgery, particularly when the procedure is for cosmetic reasons alone
- The patient should be made aware of the potential for complications and the possibility of multiple procedures
- A through pre-operative discussion should occur with the physician, patient, and family

Methods
- We identified children and adolescents ≤20 who underwent a breast procedure between 1/1/2000-7/31/2016 using CPT codes and ICD-9 diagnoses
- Retrospective chart review was performed to determine:
  - Age at first surgery
  - Number of procedures performed at Mayo Clinic Rochester

Adolescent breast disorders were divided into two categories:
- **Common**
  - Bilateral breast hypertrophy
  - Bilateral breast hypoplasia
  - Breast asymmetry
  - Benign lesions
  - Benign mass
  - Polymastia
  - Polythelia
- **Complex**
  - Poland’s syndrome
  - Tuberous breast deformity
  - Complex breast asymmetry
  - Malignancy
  - Congenital amastia

Similar patients from 1/1/2000-12/31/2012 were identified from the Kids’ Inpatient Database
- Number of procedures needed to correct common versus complex disorders was compared with an unequal variance t-test

Conclusions
- Common adolescent breast disorders may be surgically corrected with one operation
- Complex adolescent breast disorders, including malignancy, often require multiple operations to correct
- Inpatient treatment of adolescent breast disorders has been decreasing in recent years, reflecting a trend to outpatient procedures

Discussion
- Adolescent breast disorders necessitating surgical intervention are uncommon
- 241 cases over 16 years
- Average patient age at first surgery was 17.5 years and was similar for patients with common and complex breast disorders
- Patients with a common breast disorder underwent fewer operations than patients with a complex breast disorder
- 1.06 ± 0.35 versus 2.45 ±1.23, p<0.01
- The number of inpatient hospital admissions for breast procedures in children and adolescents has decreased from 2000 to 2012
- Likely reflects a trend of breast procedures being performed on an outpatient basis rather than a decrease in the overall procedure performance

Inpatient Admissions National Trends

### Number of Procedures

<table>
<thead>
<tr>
<th>Type of Disorder</th>
<th>N (%)</th>
<th>Mean number of procedures ± std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Disorders</td>
<td>221 (91.7)</td>
<td>1.06 ± 0.35</td>
</tr>
<tr>
<td>Breast Asymmetry</td>
<td>14 (6.3)</td>
<td>1.2 ± 0.46</td>
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<tr>
<td>Breast Hypertrophy</td>
<td>123 (55.6)</td>
<td>1.03 ± 0.16</td>
</tr>
<tr>
<td>Benign Mass</td>
<td>63 (28.5)</td>
<td>1 ± 0.97</td>
</tr>
<tr>
<td>Polythelia</td>
<td>14 (6.3)</td>
<td>1 ± 0.6</td>
</tr>
<tr>
<td>Polythelia</td>
<td>1 (0.4)</td>
<td>1 ± 0.6</td>
</tr>
<tr>
<td>Breast Hypoplasia</td>
<td>6 (2.7)</td>
<td>1 ± 0.6</td>
</tr>
<tr>
<td>Complex Disorders</td>
<td>20 (8.3)</td>
<td>2.45 ± 1.23</td>
</tr>
<tr>
<td>Malignant Lesion</td>
<td>2 (10)</td>
<td>4.5 ± 0.71</td>
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<tr>
<td>Amastia</td>
<td>2 (10)</td>
<td>3 ± 1.4</td>
</tr>
<tr>
<td>Asymmetry from Congenital twinning</td>
<td>2 (10)</td>
<td>2.9 ± 0.71</td>
</tr>
<tr>
<td>Poland</td>
<td>7 (30)</td>
<td>2.14 ± 1.25</td>
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<tr>
<td>Tuberous Breast</td>
<td>1 (0.4)</td>
<td>2 ± 0.34</td>
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### Common Breast Disorders

- 241 patients identified
- 181 (75.1%) female
- 60 (24.5%) male
- Mean age (± SD): 17.5±2.5 years

### Complex Breast Disorders

- 20 (8.3) patients identified
- 60 (24.5%) male
- 181 (75.1%) female
- Mean age (± SD): 17.4±2.6 years

#### Institutional Results

- Average patient age at first surgery was 17.5 years and was similar for patients with common and complex breast disorders
- Patients with a common breast disorder underwent fewer operations than patients with a complex breast disorder
- 1.06 ± 0.35 versus 2.45 ±1.23, p<0.01

#### Inpatient Admissions National Trends

- **p<0.01**