INTRODUCTION

Foreign body (FB) ingestion and aspiration is a common emergency room complaint among the pediatric population in the United States and internationally. Coins are the most common ingested FB while foodstuff (nuts, seeds, vegetables) are the most common aspirated FB. Delayed retrieval of airway and esophageal FB such as batteries can lead to detrimental injuries such as respiratory failure or esophageal injury. The history, clinical presentation, and radiographic finding may guide clinical management and determine the need for invasive interventions.

OBJECTIVES

1. Determine the patient characteristics, presentation, location, and rates of associated injury in pediatric foreign body ingestion and aspiration.
2. Analyze the types of intervention and rates of postoperative complications.

MATERIALS & METHOD

After IRB approval was obtained, the electronic medical records of a series of 315 patients with foreign body aspiration and ingestion treated at UC Davis Medical Center between January 2003 and December 2012 were reviewed. Retrospective analysis of all patients under the age of 18 who were evaluated for FB ingestion and aspiration.

RESULTS

315 patients were identified (175 esophageal FB ingestion, 70 airway aspiration, 70 oropharyngeal and gastrointestinal FB ingestion). The patient characteristics, clinical presentation, and complications are illustrated below. Five patients had button battery ingestion; all experienced mucosal necrosis with one patient requiring subsequent esophageal dilation for stricture. One patient was loss to follow up, and the remaining three did not require any post-operative intervention. In the airway FB group, pre-operative radiograph was obtained in 96% of the cases – 52.2% had air trapping, 17.4% identified a FB, 10.1% had non-specific opacity. Post-op radiographs were obtained in 62.4% of the cases after an esophagoscope and 64.3% of the cases after bronchoscopy. The most common findings were atelectasis and peri-hilar prominence. There were no cases of pneumothoraces.

Table 1: Patient characteristics, rate of witnessed event, and rate of intervention in esophageal and airway FB.

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Witnessed</th>
<th>Bronchoscopy</th>
<th>Esophagoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.55 (SD 3.58)</td>
<td>M 61.0% : F 39.0%</td>
<td>63.0%</td>
<td>5.7%</td>
<td>93.7%</td>
</tr>
<tr>
<td>3.98 (SD 4.45)</td>
<td>M 61.4% : F 38.6%</td>
<td>74.3%</td>
<td>91.4%</td>
<td>1.50%</td>
</tr>
</tbody>
</table>

Table 2: Location of obstruction in esophageal and airway FB.

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage</th>
<th>Age</th>
<th>Location</th>
<th>Percentage</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal esophagus</td>
<td>69.7%</td>
<td>2.53 (SD 2.43)</td>
<td>Right bronchus</td>
<td>41.4%</td>
<td>35.7%</td>
</tr>
<tr>
<td>Mid esophagus</td>
<td>17.7%</td>
<td>4.94 (SD 4.14)</td>
<td>Trachea</td>
<td>8.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Distal esophagus</td>
<td>9.1%</td>
<td>8.29 (SD 4.94)</td>
<td>Glotis</td>
<td>2.9%</td>
<td>11.4%</td>
</tr>
</tbody>
</table>

DISCUSSIONS/FUTURE WORK

• Choking/gagging and coughing are common in both foreign body aspiration and ingestion.
• A strong clinical history warrants endoscopic evaluation for aspiration & ingested FB despite benign radiographic findings.
• Most esophageal FB are found proximally and distal FB are typically found in older children.
• Post-operative radiographs did not identify any cases of pneumothorax or pneumomediastinum, and may not alter management in esophageal and airway FB.
• Battery ingestions are uncommon, but early recognition is essential to reduce burn injury.

REFERENCES