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Case Report

Respiratory Presentations in Gastro Esophageal Reflux in Children

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Abstract

Normal Gastroesophageal reflux is passage of physiological gastric contents in to the esophagus. It is common in infants and children with 60-65% undergoing spontaneous regression. Gastro esophageal reflux disease occurs due to various pathologies. We present to you 3 cases of GER in children along with their presentation and management.

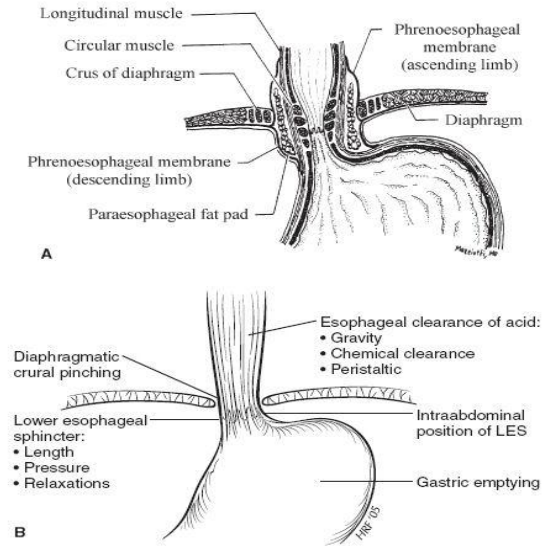
Keywords: Gastroesophageal reflux, Gastroesophageal reflux disease, Paediatrics, reflux-related disease, vomiting, regurgitation

1.Introduction

Normal reflux is passage of physiological gastric contents in to the esophagus. It is very common in infants and children. But 60-65% undergoes spontaneous regression or resolution of symptoms by 2 years of age, regardless of any medical management.

Pathological GER/GER disease occurs due to pathological effects of involuntary passage of gastric contents in to the esophagus, due to incompetence of Anti-reflux Barriers, which exist between the lower esophagus and the stomach.

Figure 1: Normal Anatomy of the Gastro esophageal Junction



The presentations fall under the following categories:

1. Failure of growth - 81%
2. Repeated Respiratory complications-45%
3. Apparent life threatening events – Sudden Infant Death Syndrome (SIDS)
4. Irritability
5. Dysphagia -30%
6. Haemorrhages-7%

2. Case Reports

Here we would like to discuss3 cases who presented at various ages and with different presentations (symptoms):

2.1 Case No. 1

6 weeks old male child who presented with recurrent vomiting and severe respiratory distress since birth. Patient had tachypnea, tachycardia and severe bronchospasm refractory to the conventional Bronchodilators, due to continuous micro aspiration of gastric contents into the respiratory tree. On clinical examination, he showed signs of growth retardation and respiratory insufficiency (Poor O_2 saturation). Barium swallow demonstrated a continuous reflux of contrast into the tracheobronchial tree.

2.2 Case No. 2

11 months old otherwise healthy male child presented with repeated episodes of sudden bouts of intractable cough on making him supine. There was a history of repeated respiratory tract infections and typical back arching similar to Sandifer syndrome. In view of history of repeated respiratory complaints, there was history of frequent hospitalizations and use of a variety of antibiotics. He was even given Anti-Tubercular treatment. Nothing had given any relief to the bouts of cough. Barium study demonstrated a Grade IV gastro esophageal reflux.

2.3 Case No. 3

1 year old male child with history of vomiting since birth and repeated hospitalization due to chest infection. Patient had all signs of Protein Energy Malnutrition.

Barium study showed Grade IV reflux.

Considering the wide variety of symptoms, a clinical suspicion is the most important factor in diagnosing the condition, as there are no obvious signs of the disease itself on clinical examination of the patient in supine position; our own experience suggests that the symptoms appear more commonly and severely in the Right Lateral position rather than the Left Lateral position. Most of the times, they are evident only after the complications of GERD have occurred.

3. Diagnosis

3.1 History

A careful and accurate history is an invaluable asset for diagnosing, and determining the need for surgical management.

3.2 Investigations

a. Esophageal Manometry

b. Esophageal pH monitoring

c. Radiological studies

Upper G.I. Contrast study is of immense importance in diagnosing the condition. It shows presence of reflux, delineates anatomy of esophagus and esophago-gastric junction, and evaluates esophageal clearance and motility. It also shows esophageal webs and strictures, or distal obstruction like Duodenal webs, Congenital Hypertrophic Pyloric Stenosis, Malrotation, etc. which are all differential diagnoses for this condition. It also plays a very crucial role in deciding the modality of treatment.

d. Gastric Scintiscan

e. Endoscopy.

A word about Radiological Imaging:

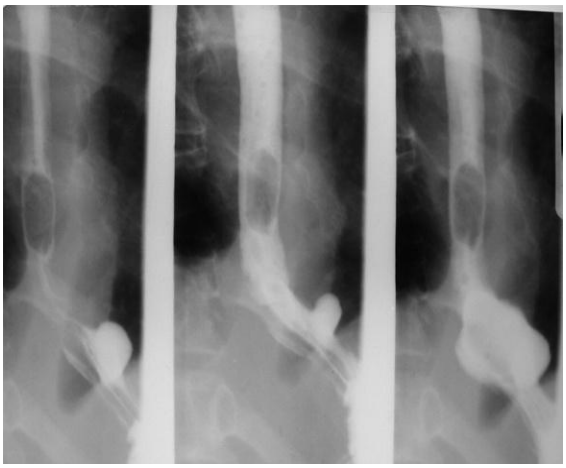


Figure 2: Barium study in GERD

Many a times, Barium study is reported to be falsely negative. As these patients are small infants, they do not drink the contrast solution in adequate amount; so, we recommend using an infant feeding tube to fill the stomach completely with the contrast solution and then examine the patient under fluoroscopy, after removing the tube, in Supine and Right Lateral positions.

Reflux may not be demonstrated immediately, as it is an intermittent phenomenon in 50-60% cases. So, a patient Fluoroscopic imaging is required, so as not to miss the disease.

(Here in cases 2 and 3, the first Barium studies were reported normal.)

As Barium study can be done at almost all centers, it remains the investigation of choice, if done accurately.

With advances in medical technology, presence of GE reflux can be diagnosed antenatally also.

4. Management

Management can be Medical and Surgical. Basic aims of management are-

a. Prevent gastroesophageal reflux;
b. Limit the esophageal injury due to the acid refluxate;
c. Clear esophageal refluxate.

4.1 Medical Management

Lifestyle Modifications to treat GERD in infants may involve a combination of feeding changes and positioning therapy. Reducing the feeding volume while increasing the frequency of feedings milk. It should be noted that protein allergy can cause a clinical presentation that mimics GERD in infants.

4.2 Pharmacological Management

Two major classes of pharmacologic agents for treatment of GERD are acid suppressants and prokinetic agents. The main classes of acid suppressants are antacids, histamine-2 receptor antagonists (H2RAs), and PPIs.

Cimetidine 30–40 mg/kg/d, divided in 4 doses; Ranitidine 5–10 mg/kg/d, divided in 2 to 3 doses; Omeprazole 0.7–3.3 mg/kg/d ; Rabeprazole 20 mg daily; Pantoprazole 40 mg daily can be used to treat the symptoms.

According to the new guidelines, chronic antacid therapyis generally not recommended in pediatrics for the treatment of GERD.

Most recently, PPIs have emerged as the most potent class of acid suppressants PPIs areuniquely able to inhibit meal-induced acid secretion and have a capacity to maintain gastric pH >4 for a longer period of time the acid suppression ability of PPIs has not been observed to diminish with chronic use.

Prokinetic agents: The pharmacologic effects of prokinetic agents include improveing contractility of the body of theesophagus, increasing lower esophageal sphincter pressure, and increasing the rate of gastric emptying. Metoclopramide, the most common prokinetic agent available, with its adverse effects ranging in 11% to 34% in patients treated. Metoclopramide, has some side effects including drowsiness, restlessness, and extrapyramidal reactions.

Randomized controlled trials of metoclopramide in patients younger than 2 years with GERD confirmed a decrease in GERD symptoms

Other drugs in this category include bethanechol, cisapride, baclofen, and erythromycin. Each works as a prokinetic by using a different mechanism. There is insufficient evidence to support theroutine use of any prokinetic agent for the treatment of GERD in infants orolder children.

4.3 Surgery for Pediatric GERD

Several surgical procedures can be used to decrease GER disorders. In Fundoplication, the gastric fundus is wrapped around the distal esophagus, It prevents reflux by increasing baseline pressure of the lower esophageal sphincter, decreasingthe number of transient lower esophageal sphincter relaxations, and increasing the length of the esophagus that is intra-abdominal to accentuate the angle of His and reduce a hiatal Hernia. It is most commonly performed procedure and can be done laproscopically. Total esophagogastric dissociation is another operative procedure that is rarely used after failed fundoplication.

Candidates for surgical therapy are

Children who have failed pharmacologic treatment and children at severe risk of aspiration of their gastric contents.

When acid suppression with PPIs is ineffective, the accuracy of the diagnosis of GERD should be reassessed, because fundoplication may not produce optimum clinical results.

Clinical conditions, such as cyclic vomiting, rumination, gastroparesis and eosinophilic esophagitis, should be carefully ruled out before surgery, because they are likely to still cause symptoms after surgery.

If antireflux surgery is pursued, the new guidelines also stress the importance of providing families with adequate counseling and education before the procedure so that they have realistic understanding of complications, which importantly include symptom recurrence.

5. Conclusion

Repeated respiratory infections should rouse a suspicion in the clinician's mind, as the patient may be normal on Clinical Examination.

It may be important to recognize physiologic GER (Gastroesophageal reflux) that is effortless, painless, and not affecting growth in such situations, one should focus on minimal testing and conservative management.

The patient's weight gain, though not the sole criterion, can be used successfully as an indicator, so as to provide useful clues regarding the presence of the disease.

The decision of conservative management versus surgical management should be tackled carefully considering the clinical features of the patient

Conflict of Interest: The authors declare to have no conflict of interest

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