Diagnosis of Gastroesophageal Reflux in Wheezy Children By Endoscopy Versus Sonography

Thesis
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Pediatrics

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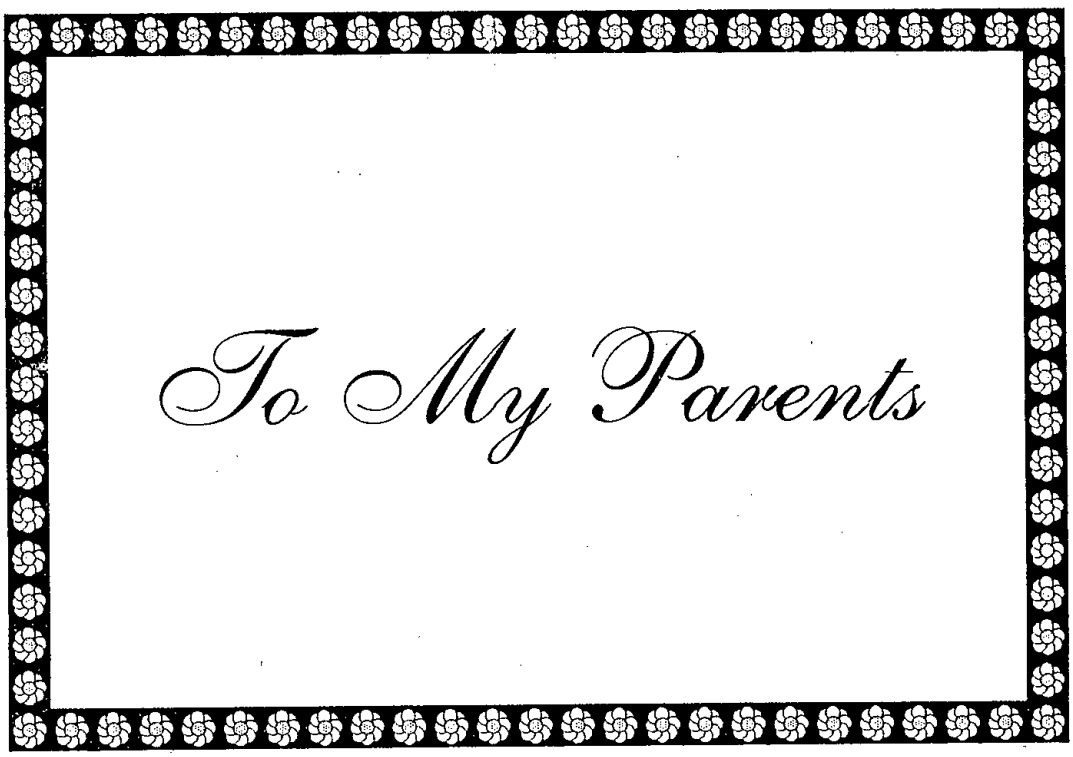
قَالُوا۟ سُبْحَٰنَكَ لَا عِلْمَ لَنَآ إِلَّا
مَا عَلَّمْتَنَآ ۖ إِنَّكَ أَنتَ ٱلْعَلِيمُ ٱلْحَكِيمُ ﴿٣٢﴾

صدق الله العظيم

(سورة البقرة - الآية ٣٢)


To My Parents

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ABBREVIATIONS

BE	Barrette's esophagus
CF	Cystic fibrosis
GEJ	Gastro-esophageal junction
GER	Gastro-esophageal reflux
H.H.	Hiatus hernia
IAPE	Intraabdominal part of the esophagus
IC	Incompetent cardia
LES	Lower esophageal sphincter
PLOS	Pressure of the lower esophageal sphincter
RE	Reflux esophagitis
TLESR	Transient lower esophageal sphincter relaxation
U/S	Ultrasonography
UES	Upper esophageal sphincter

CONTENTS

Introduction & Aim of The Work

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Gastro-esophageal reflux (GER) is a very common event in pediatric patients (***DiMario et al.,*** 1995).

GER is defined as presence of gastric contents in the esophagus proximal to the stomach (***Hillemeier,*** 1996).

GER accounts for approximately 75% of esophageal pathology (***Peters and DeMeester,*** 1993).

Although many infants have minor degrees of reflux about 1:300 - 1:1000 have significant reflux and associated complication (***Orenstein,*** 1993).

Reflux of gastric content is a physiologic occurrence that takes place more often during infancy and decreases with advancing age (***Hillemeier,*** 1996).

In infants chronic cough or regurgitation and vomiting are the most frequent complaints and if severe may result in failure to thrive, aspiration pneumonia, wheezing or esophagitis with bleeding and anemia (***Orenstein,*** 1992).

The interaction between GER and respiratory diseases have been identified and explored (***Putnam et al.,*** 1992).

The prevalence of GER in 86 children with respiratory problems was evaluated and it was found that pathological GER was present in 60.5% of children (***Tucci et al.,*** 1993).

The presence of pathologic reflux can be defined endoscopically, histologically, by PH probe, radiographically or scintigraphically (***Orenstein,*** 1991). Esophageal manometery, Bernstein test, modified Bernstein test and sonography are important diagnostic methods of GER (***Pellegrini et al.,*** 1979; ***Riccabona et al.,*** 1992 and ***Davis et al.,*** 1983).

The present study aims at evaluating the diagnostic efficacy of ultrasound in comparison to endoscopic examination for the diagnosis of GER in wheezing infant, children.

Complication of reflux will be searched for in the form of reflux esophagitis (by using histological examination of mucosal biopsies from the lower part of the esophagus obtained by fiberoptic endoscopy).

Review of Literature

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Gastro-esophageal Reflux (GER)

Definition :

GER is the presence of gastric contents in the esophagus proximal to the stomach (***Hillemeier,*** 1996).

GER is a passive and involuntary flow of gastric juices into the esophagus (***Chen et al.,*** 1989).

Herniation of the stomach into the chest has been recognized for many years, however, GER is a functional abnormalities and a controversial topic, it is a common condition and its consequences may be extremely serious (***Mouterde et al.,*** 1990).

GER is a term which denotes return of gastric contents into the esophagus without implying an understanding of the aetiology (***Orenstein,*** 1991).

GER is the retrograde movement of gastric contents, acid pepsin, food and/ or bile into the esophagus. GERD is due to the presence of refluxed acid (sometimes it is bile), into the

esophagus for longer than four minutes, and thus can cause symptoms, inflammation and complication later (***Simpson,*** 1995).

Incidence :

Although by 1950, reflux and its inflammlatory sequelae are well recognized in adults, only individual pediatric case reports has appeared when ***Ivo Carre*** first recognized reflux as an important problem in children (***Carre,*** 1979).

GER is a common disease that accounts for approximately 75% of the esophageal pathology (***Peters et al.,*** 1993).

Although many infants have minor degrees of reflux about 1:300 - 1:1000 have significant reflux and associated complication (***Orenstein,*** 1993).

Among many causes of relapsing and chronic respiratory diseases in children , GER revealed in 53 of 106 examined children i.e. in 50% (***Copova et al.,*** 1991).

The prevalence of GER in 85 children with respiratory problems was evaluated and it was found that pathological GER was present in 60.5% of children (***Tucci et al.,*** 1993).

Patients with cerebral palsy, Down syndrome, other causes of developmental delay have an increased incidence of reflux (***Orenstein,*** 1993).

The prevalence of troublesome GER diseases is 5-8% in adults as well as in children (***Eitelberger,*** 1993).

Pathophysiology of GER :

An understanding of the pathophysiology of GERD should aid selection of appropriate therapy (***Robinson,*** 1994).

The esophagus is a muscular tube lined with squamous epithelium and separated from the pharynx above and the stomach below by tonically closed sphincters (***Orenstein,*** 1991). Esophagus transport contents from the pharynx to the stomach without changing their properties. When relaxed this muscular tube is 25-30cm long and 2-3cm wide (***Spechler et al.,*** 1994).

The gastro-esophageal junction (esophago-gastric angle of Hiss) is the angle between the abdominal portion of the esophagus and the gastric fundus. With a more acute Hiss's angle a greater force is required for retrograde opening of the

esophago-gastric junction. In patients with a hiatus hernia, little force is required for reflux to be provoked (***Chen et al.,*** 1989).

The need for competent (GEJ), to prevent the return of gastric material into the esophagus; is constantly sabotaged by competing needs: to move swallowed material past the GEJ into the stomach, to allow venting of swallowed air, and to allow the occasional regurgitation of noxious gastric material. Thus GEJ is normally broached many times each day. It is remarkable, in fact, that the mechanism promoting GEJ competence are generally so effective and yet are able to be overridden physiologically for such diversity of reasons (***Orenstein,*** 1991).

GEJ is of great importance as anti-reflux mechanism (***Navarro et al.,*** 1992).

The esophagus, cardia and fundus are attached to the diaphragm by the phreno-esophageal and gastro-phrenic ligaments. The phreno- esophageal ligament and the circular muscle of esophageal wall are closely related (***Navarro et al.,*** 1992).

The esophagus pass through the esophageal hiatus of the diaphgram at the level of T10, this opening in the posterior part