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EOSINOPHILIC ESOPHAGITIS AND REFLUX DISEASE: PATHOPHYSIOLOGIC MECHANISM AND OVERLAPPING OF THE DIAGNOSES

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Relevance. Eosinophilic Esophagitis (EoE), an autoimmune condition affecting the esophagus, is increasingly common and the similarities between it and gastroesophageal reflux disease (GERD) can delay diagnosis. GERD occurs primarily due to dysfunction of the lower esophageal sphincter (LES) and acid injury to the esophageal epithelium, while EoE occurs when there is a type 2 inflammatory response and both epithelial barrier dysfunction and esophageal motility impairment may occur. Recent studies suggest that there is significant overlap in the pathophysiology of the two diseases, as reflux disease can disrupt the epithelial barrier, allowing antigen (food) to enter the epithelium and trigger eosinophilic inflammation; alternatively, poor motility in EoE can result in poor acid clearance from the esophagus, thus exacerbating GERD. It is essential to understand how these two conditions interact with one another to achieve accurate diagnosis and treatment of both conditions.

Aim: identify the pathophysiology of Eosinophilic Esophagitis and its association with Gastroesophageal Reflux Disease (GERD) based primarily on clinical associations of diseases and systemic factors rather than on histologic criteria.

Materials and methods. There were 30 clinical cases of pediatric patients (Republican Scientific and Practical Center of Pediatric Surgery (Surgical Department No. 3 (Elective surgery))) that were evaluated with data collection from the clinical visit to determine their age (ranging from 1 to 17 years), sex, presenting symptoms (e.g. abdominal pain, heartburn, dysphagia and/or nausea/vomiting), and presence of associated diseases (e.g., allergic rhinitis, asthma, atopic dermatitis, GERD, chronic gastritis, duodenogastric reflux, hiatal hernia, foreign body ingestion, etc.). Each case of Eosinophilic Esophagitis (EoE) was classified as either EoE-predominant (allergic phenotype), Gastroesophageal Reflux Disease (GERD)-predominant (mechanical reflux without allergy) or an indeterminate overlap between the two.

Results and their discussion. According to a recent study, 70% of the patients were male while 30% were female, conforming to sex differences associated with type 2 immunity. The average age of those diagnosed was 12.1 years old and 53% were in the 13 to 17-year-old age range; this prevalence indicates cumulative exposure to antigens and progressive dysfunction of the barrier. Chronic gastritis was the most frequently associated diagnosis (40%), and less commonly associated with GERD (37%), duodenogastric reflux from the stomach into the duodenum (30%), allergy/atopy (27%), insufficiency at the cardia (20%), and the ingestion of a foreign body (10%). Sixty-three percent of patients had more symptoms of EoE than GERD, while 27% had more symptoms of GERD than EoE, and only 10% had indeterminate symptoms. Patients who were indeterminate had symptoms of heartburn and reflux but did not have associated allergies. There are three models for understanding the overlap of both diagnoses. First, a primary cause of GERD is reflux of acid that disrupts the barrier so antigens can penetrate resulting in type 2 inflammation. Second, the primary cause of EoE is type 2 cytokines impairing motility resulting in reduced acid clearance, which can lead to secondary GERD. Finally, the third model is one of bidirectionality, where each condition stimulates the other causing a cycle of compounding symptoms.

Conclusions. Barrier dysfunction, dysmotility and type 2 immune systems are common between EoE and GERD. EoE is classified as an atopic condition while GERD is classified as a mechanical/non-atopic reflux that occurs in 10 % of mixed phenotypes. EoE can be triggered by foreign body exposure. The higher prevalence of the male gender suggests a role for hormonal modulation in EoE.