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50 Years Ago in The Journal of Pediatrics: The Behavior of the Lower Esophageal Sphincter in Infants and Its Relationship to Gastroesophageal Regurgitation

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Strawczynski et al presented findings of manometric studies of the lower esophageal sphincter (LES) performed on 103 subjects, including regurgitating infants. The low tone of LES increased significantly to adult levels between the second and fourth weeks of age after birth. Failure to achieve this neuromuscular control resulted in tendency to regurgitate. This was accompanied by an increase in the gastroesophageal pressure gradient, which was also shown to increase steadily with age.

LES pressure rises as the postmenstrual age advances as does esophageal peristaltic motor patterns.¹ About 70%–85% of infants have regurgitation within the first 2 months of life, and this resolves without intervention in 95% of infants by 1 year of age. Gastroesophageal reflux (GER) is defined as the involuntary retrograde passage of gastric contents into the esophagus with or without regurgitation or vomiting. It is a frequently experienced physiologic condition occurring several times a day, mostly postprandial and causes no symptoms. These infants are also called 'happy spitters.' GER results from relaxation of the LES, which is defined as an abrupt decrease in LES pressure to the level of intragastric pressure, unrelated to swallowing and of relatively longer duration than the relaxation triggered by a swallow. In healthy infants and children, relaxation of the LES is transient. In infants, gastric distention associated with large volume feeds (100–150 mL/kg per day compared with the average adult intake of 30–50 mL/kg per day) portends more frequent transient LES relaxations. Delayed gastric emptying also can increase the frequency of transient LES relaxations. Esophageal clearance and mucosal defense (secretions) play a significant role in prevention of esophagitis. Compromise of these functions contributes to the development of GER disease (GERD). Although much less common, infants can develop GERD, with failure to thrive, feeding difficulties, arching of the back, or irritability, the most common symptom noted by caregivers. Rarely, extra-intestinal signs of GERD occur in infants, including apparent life-threatening events, wheezing, recurrent cough, aspiration pneumonia, and abnormal posturing or torticollis, known as Sandifer syndrome.

References

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