

PHYSIOLOGIC PECULIARITIES OF THE DIGESTIVE SYSTEM**Makhsumova D.K.****Teacher of Andijan State Medical Institute, Doctor of Philosophy.****Ergasheva D.A.****Student of Andijan State Medical Institute**

Annotation: Gastroenterology, medical specialty concerned with the digestive system and its diseases. Gastroenterologists diagnose and treat the diseases and disorders of the esophagus, stomach, intestines, liver, biliary tract, and pancreas. Among the most common disorders they must deal with are gastroesophageal reflux disease (GERD), gastric and duodenal ulcers, malignant tumours, inflammatory bowel diseases, colorectal cancer, and rectal disorders.

Key words: diagnosis, anus, mouth, stomach, treatment.

The first scientific studies of the digestive system were performed by Jan Baptist van Helmont in the 17th century. In 1833 the publication of William Beaumont's observations shed new light on the nature of gastric juice and the digestive process in general.

A major advance in treatment in the 19th century was the use of gastric lavage (washing out of the stomach) to treat stomach poisoning; this became a standard treatment for all forms of gastric irritation, and the long tube used to introduce the lavage fluid was also adapted to view the stomach for diagnostic use. A tube that could be inserted down the esophagus and upon which a light was mounted to illuminate the area visualized was invented in about 1889; this rigid instrument was soon replaced by the semiflexible gastroscope, developed by Rudolf Schindler in 1932, and then by the flexible fibre-optic gastroscope, developed by Basil Hirschowitz in 1957. In the 1890s Walter Cannon used X rays to visualize the stomach and digestive organs, and he also used bismuth salts to coat the gastrointestinal lining and thus make digestive movements visible by fluoroscopy.

Human digestive system, system used in the human body for the process of digestion. The human digestive system consists primarily of the digestive tract, or the series of structures and organs through which food and liquids pass during their processing into forms absorbable into the bloodstream. The system also consists of

the structures through which wastes pass in the process of elimination and other organs that contribute juices necessary for the digestive process. The digestive tract begins at the lips and ends at the anus. It consists of the mouth, or oral cavity, with its teeth, for grinding the food, and its tongue, which serves to knead food and mix it with saliva; the throat, or pharynx; the esophagus; the stomach; the small intestine, consisting of the duodenum, the jejunum, and the ileum; and the large intestine, consisting of the cecum, a closed-end sac connecting with the ileum, the ascending colon, the transverse colon, the descending colon, and the sigmoid colon, which terminates in the rectum. Glands contributing digestive juices include the salivary glands, the gastric glands in the stomach lining, the pancreas, and the liver and its adjuncts—the gallbladder and bile ducts. All of these organs and glands contribute to the physical and chemical breaking down of ingested food and to the eventual elimination of nondigestible wastes. Their structures and functions are described step by step in this section.

Little digestion of food actually takes place in the mouth. However, through the process of mastication, or chewing, food is prepared in the mouth for transport through the upper digestive tract into the stomach and small intestine, where the principal digestive processes take place. Chewing is the first mechanical process to which food is subjected. Movements of the lower jaw in chewing are brought about by the muscles of mastication (the masseter, the temporal, the medial and lateral pterygoids, and the buccinator). The sensitivity of the periodontal membrane that surrounds and supports the teeth, rather than the power of the muscles of mastication, determines the force of the bite. Mastication is not essential for adequate digestion. Chewing does aid digestion, however, by reducing food to small particles and mixing it with the saliva secreted by the salivary glands. The saliva lubricates and moistens dry food, while chewing distributes the saliva throughout the food mass. The movement of the tongue against the hard palate and the cheeks helps to form a rounded mass, or bolus, of food.

The lips and cheeks

The lips, two fleshy folds that surround the mouth, are composed externally of skin and internally of mucous membrane, or mucosa. The mucosa is rich in mucus-secreting glands, which together with saliva ensure adequate lubrication for the purposes of speech and mastication.

The cheeks, the sides of the mouth, are continuous with the lips and have a similar structure. A distinct fat pad is found in the subcutaneous tissue (the tissue beneath the skin) of the cheek; this pad is especially large in infants and is known as the sucking pad. On the inner surface of each cheek, opposite the second upper molar tooth, is a slight elevation that marks the opening of the parotid

duct, leading from the parotid salivary gland, which is located in front of the ear. Just behind this gland are four to five mucus-secreting glands, the ducts of which open opposite the last molar tooth.

The roof of the mouth

The roof of the mouth is concave and is formed by the hard and soft palate. The hard palate is formed by the horizontal portions of the two palatine bones and the palatine portions of the maxillae, or upper jaws. The hard palate is covered by a thick, somewhat pale mucous membrane that is continuous with that of the gums and is bound to the upper jaw and palate bones by firm fibrous tissue. The soft palate is continuous with the hard palate in front. Posteriorly it is continuous with the mucous membrane covering the floor of the nasal cavity. The soft palate is composed of a strong, thin, fibrous sheet, the palatine aponeurosis, and the glossopalatine and pharyngopalatine muscles. A small projection called the uvula hangs free from the posterior of the soft palate.

The floor of the mouth

The floor of the mouth can be seen only when the tongue is raised. In the midline is a prominent, elevated fold of mucous membrane (frenulum linguae) that binds each lip to the gums, and on each side of this is a slight fold called a sublingual papilla, from which the ducts of the submandibular salivary glands open. Running outward and backward from each sublingual papilla is a ridge (the plica sublingualis) that marks the upper edge of the sublingual (under the tongue) salivary gland and onto which most of the ducts of that gland open.

The gums

The gums consist of mucous membranes connected by thick fibrous tissue to the membrane surrounding the bones of the jaw. The gum membrane rises to form a collar around the base of the crown (exposed portion) of each tooth. Rich in blood vessels, the gum tissues receive branches from the alveolar arteries; these vessels, called alveolar because of their relationship to the alveoli dentales, or tooth sockets, also supply the teeth and the spongy bone of the upper and lower jaws, in which the teeth are lodged.

The teeth

The teeth are hard, white structures found in the mouth. Usually used for mastication, the teeth of different vertebrate species are sometimes specialized. The teeth of snakes, for example, are very thin and sharp and usually curve backward; they function in capturing prey but not in chewing, because snakes swallow their food whole. The teeth of carnivorous mammals, such as cats and dogs, are more pointed than those of primates, including humans; the canines are long, and the premolars lack flat grinding surfaces, being more adapted to cutting and shearing (often the more posterior molars are lost). On the other hand, herbivores such as cows and horses have very large, flat premolars and molars with complex ridges and cusps; the canines are often totally absent. Sharp pointed teeth, poorly adapted for chewing, generally characterize meat eaters such as snakes, dogs, and cats; and broad, flat teeth, well adapted for chewing, characterize herbivores. The differences in the shapes of teeth are functional adaptations. Few animals can digest cellulose, yet the plant cells used as food by herbivores are enclosed in cellulose cell walls that must be broken down before the cell contents can be exposed to the action of digestive enzymes. By contrast, the animal cells in meat are not encased in nondigestible matter and can be acted upon directly by digestive enzymes. Consequently, chewing is not so essential for carnivores as it is for herbivores. Humans, who are omnivores (eaters of plants and animal tissue), have teeth that belong, functionally and structurally, somewhere between the extremes of specialization attained by the teeth of carnivores and herbivores.

Each tooth consists of a crown and one or more roots. The crown is the functional part of the tooth that is visible above the gum. The root is the unseen portion that supports and fastens the tooth in the jawbone. The shapes of the crowns and the roots vary in different parts of the mouth and from one animal to another. The teeth on one side of the jaw are essentially a mirror image of those located on the opposite side. The upper teeth differ from the lower and are complementary to them. Humans normally have two sets of teeth during their lifetime. The first set, known as the deciduous, milk, or primary dentition, is acquired gradually between the ages of six months and two years. As the jaws grow and expand, these teeth are replaced one by one by the teeth of the secondary set. There are five deciduous teeth and eight permanent teeth in each quarter of the mouth, resulting in a total of 32 permanent teeth to succeed the 20 deciduous ones.

The tongue

The tongue, a muscular organ located on the floor of the mouth, is an extremely mobile structure and is an important accessory organ in such motor functions as speech, chewing, and swallowing. In conjunction with the cheeks, it is able to guide and maintain food between the upper and lower teeth until mastication is complete. The motility of the tongue aids in creating a negative pressure within the oral cavity and thus enables infants to suckle. Especially important as a peripheral sense organ, the tongue contains groups of specialized epithelial cells, known as taste buds, that carry stimuli from the oral cavity to the central nervous system. Furthermore, the tongue's glands produce some of the saliva necessary for swallowing.

The tongue consists of a mass of interwoven striated (striped) muscles interspersed with fat. The mucous membrane that covers the tongue varies in different regions. The tongue is attached to the lower jaw, the hyoid bone (a U-shaped bone between the lower jaw and the larynx), the skull, the soft palate, and the pharynx by its extrinsic muscles. It is bound to the floor of the mouth and to the epiglottis (a plate of cartilage that serves as a lid for the larynx) by folds of mucous membrane.

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