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The Influence of Constitutional Features on X-Ray Anatomy of the Gastrointestinal Tract

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Abstract: Journals, materials of scientific conferences, as well as other information sources were studied to collect reliable information on the impact of various factors on gastric x-ray anatomy. The obtained data will reveal the mechanism of constitutional factors in the development of any disease, including chronic diseases of the gastrointestinal tract. The study of this dependence of the features of the course of the pathology of the gastrointestinal tract in persons from 7 types of constitution seems to us promising for further study, which must be taken into account by clinicians as part of an individual approach to the patient.

Keywords: age-related X-ray anatomy, stomach, various factors.

The study of the human constitution seems relevant, which is currently relevant, despite the fact that it dates back to ancient times, where this concept was first reflected as inherent in a person from birth and remaining unchanged throughout life [17]. Constitution can be defined as a combination of physical properties, psychodynamics and other characteristics, reflecting a state of reactivity [20]. In medical morphology, constitution is a fundamental characteristic of an entire organism, most fully embodying the idea of the qualitative unity of its biological organization [24].

The constitution is an integral stable characteristic of the human body. Constitutionality, to one degree or another, is inherent in all forms of human pathology, and the formation of constitutional risk necessarily precedes the onset of diseases [7].

A large number of works have been carried out indicating about the constitutional conditionality of the vital activity parameters of the human body at different levels [15,24]. And in the development of pathologies of the entire gastrointestinal tract, one of the most important is the hereditary-constitutional factor [6, 16].

Each age period has its own characteristic morphological, metabolic and functional features that determine the difference in the body's response to the same environmental influences. The greatest features of the structure, metabolism and functions in healthy, and even more so in sick people, are characteristic of intensively changing periods of intrauterine development (embryonic, fetal) and various stages of extra uterine life of the body (especially newborns, childhood and aging) [2].

Within the framework of the morphological approach, taking into account the constitutional characteristics of the organism is an integral component in the study state of human health in normal conditions and in various pathologies. It is this approach to the study of the human body that allows us to obtain a more complete understanding not only of the diversity of age typology

and variability of systems, but also to identify patterns between the somatic constitution of a person and his other systems, in particular the digestive system [8,20,34].

The basis of a person's constitutional type is his somatotype, i.e. his physical body type. It is formed in the process of individual development, depends on gender and age, and has unequal occurrence in the population. Therefore, from the standpoint of an intersystem approach to the study of the whole organism, research to identify the characteristic features of each somatotype: physiological, biochemical, etc. is of utmost importance. [3, 23].

One of the most important features of modern radiology– high degree of differentiation. It manifests itself as the specialization of radiologists in the application of certain X-ray techniques. Many radiological symptoms are difficult to identify, and they require special research techniques, special interpretation, and most importantly a multimodal approach [radiography, fluoroscopy, computed tomography (CT) and magnetic resonance imaging (MRI)]. Diseases of the digestive tract that arise at this age are prone to chronicity [13, 16].

Diseases of the gastrointestinal tract are a very common problem even in progressive developed countries. This is due to the accelerated pace of life, poor nutrition, and poor quality of food. One of the indirect causes of serious illnesses is considered to be failure to seek medical help in a timely manner. Most pathologies in the digestive tract are accompanied by unpleasant symptoms, pain, weight loss or obesity. To establish an accurate diagnosis and treatment, doctors use many examination methods. The main one remains radiography of the duodenum and stomach [6, 17].

Among the functional pathologies of the pharynx and esophagus in adolescents, swallowing disorders, pain when swallowing, pain behind the sternum and in the neck, belching, heartburn, diffuse esophagospasm, reflux esophagitis, acute and chronic esophagitis are often found. These disorders are especially characteristic of persons with psycho-emotional lability and patients with neuroses. Among the functional pathologies of the stomach in adolescents, hypertensive gastric dyskinesia, cardiospasm, pylorospasm, functional gastric hypersecretion and gastric achylia are often detected. The most common diseases of the stomach and duodenum are: 1) acute and chronic gastritis and duodenitis (usually superficial and catarrhal, less often hyperplastic or atrophic with increased, normal and even decreased acidity of gastric juice); 2) duodenogastric reflux; 3) erosions of the stomach and duodenum (acute, chronic, scarring) and other pre-ulcerative conditions; 4) peptic ulcer and symptomatic ulcers of the stomach and duodenum (especially with increased production of glucocorticoids and decreased secretion of mineralocorticoids); 5) stomach polyps [2,35].

Using radiation diagnostic methods, the vast majority of all primary diagnoses are made, and in a significant part of diseases, diagnosis is generally unthinkable without the use of these methods [5, 11].

X-ray examination of the gastrointestinal tract includes X-ray television transmission and radiography under transmission control. X-ray television scanning is used to study the motor function of the digestive organs, as well as to select the optimal projection, moment of filling and motility and degree of compression for targeted images. X-ray examination of the stomach, esophagus and small intestine is carried out on an empty stomach; the patient is prohibited from drinking and smoking on the day of the examination. The gastrointestinal tract is a continuous hollow tube, the structure and function of which depend on the department. And in this regard, various techniques are used to study the esophagus, stomach, small and large intestine. However, there are general rules for x-ray examination of the gastrointestinal tract [12,37,40].

There is a German classification of human body types, consisting of three components:

- asthenic (hyposthenic), has a low position of the diaphragm, a small heart of an elongated droplet shape, elongated lungs, short length of the intestines with reduced absorption

capacity, blood pressure tending to decrease, low cholesterol in the blood, increased metabolism with dissimilation processes;

- hypersthenic, has a high location of the diaphragm, a voluminous stomach and long intestines with high absorption capacity, a large heart, which is horizontal, with a tendency to increase blood pressure, the content of cholesterol and uric acid in the blood is high, an increased number of red blood cells, assimilation processes are accelerated, there is tendency to obesity;
- normosthenic - moderately well-fed, proportionally developed type

In accordance with the somatotyping scheme according to the method of V.P. Chtetsov in men there are 5 main somatotypes: asthenic, thoracic, muscular, abdominal and eurysomal.

In addition to Chtetsov's method, an index assessment of belonging to a particular somatotype is also widely used - according to the method of L. Rees, HJ Eishenck. This method primarily takes into account the development of the bone component of the body [26]

Along with the named "pure" somatotypes, men also have an undefined somatotype, which occupies an intermediate position between the thoracic and abdominal ones.

In women, according to the V.P. Chtetsov distinguishes 7 somatotypes:

asthenic, stenoplastic, picnic, mesoplastic, euryplastic, subathletic, athletic [22,34,36].

In obese women suffering from primary open-angle glaucoma, a predominant frequency of types of megalosomal constitution and an increased Quetelet index was revealed. Consequently, the development and course of the glaucomatous process to a certain extent may be determined by the constitutional characteristics of the patient [14].

It has been established that somatotypological affiliation also influences the degree of destructive and degenerative changes in the spine detected by radiography. Thus, with the thoracic and muscular somatotypes, a mild degree of clinical manifestations is characteristic, while with the abdominal somatotype, on the contrary, there are pronounced radiological changes in the spine, an acute development of the clinical picture, more frequent exacerbations, a progressive and recurrent course. It follows that for men with degenerative-dystrophic diseases of the spine, correction of body weight and prevention of obesity is mandatory [10, 18].

X-ray studies play a major role in obtaining images of human organs and systems. Almost all organs and systems can be examined using non-contrast x-ray methods and using artificial contrast. The shape and position of the stomach depend on the constitution, gender, age, tone, and the patient. To see a living organism from the inside, to study its structure, work and to recognize pathology and disease is carried out using x-rays. Often diseases of the digestive organs are combined with each other and diseases of other systems, such as scleroderma, rheumatism and diseases of the hematopoietic organs. Stress and dyskinetic, metabolic and immunological factors are of no small importance. Optimal radiation diagnostic techniques have been developed for each organ of the digestive tract. Based on anamnestic and clinical data, a radiological examination is planned and carried out. This endoscopic examination is also taken into account, which allows you to examine the gastric mucosa and take material for histological examination. In X-ray images, the relief of the gastric mucosa is formed by folds, interfold spaces and gastric fields [1,32,37].

When analyzing the X-ray picture, it is necessary to know the nomenclature of various parts such as cardiac, subcardial, antral, pyloric, body and vault of the stomach. The shape and position of the stomach depend on the constitution and age of the patient and is in the shape of a hook in asthenics and in the shape of a horn in hytersthenics. Depending on the tone, there are normotonic, hypertonic, hypotonic and atonic stomachs. With normal tone, the barium suspension drops slowly, with low tone it drops quickly [5, 11, 31, 39].

Depending on peristalsis, deep, segmented, medium and superficial peristalsis or its complete absence are distinguished. Evacuation of the received barium suspension from the stomach is carried out within the first 30 minutes. Complete emptying of the stomach occurs within 1.5 hours.

The results of fluoroscopy of the stomach are analyzed by a gastroenterologist and a radiologist [19,30,38].

The constitutional factor is an important and integral part in the development of any disease, including chronic diseases of the gastrointestinal tract. The study of this dependence of the characteristics of the course of gastrointestinal tract pathology in individuals on the type of constitution seems to us promising for further study. This must be taken into account by clinicians as part of an individual, personalized approach to the patient [9,16,27]. A paradoxical situation has developed in the world when the progress of medicine and a thorough analysis of pathology are ahead of knowledge of normal human morphology. The study of the patterns of individual human development is an urgent problem for all humanity [1, 28].

Conclusion. Today, up to 35% of people suffer from various stomach pathologies. This is due to its important role in the body and the high incidence of gastrointestinal tract diseases. Modern science strives not only to identify and explain phenomena, but also tries to control biological processes with the help of regulatory mechanisms. Therefore, the study of intercellular, intertissue and interorgan relationships is a relevant and promising direction in morphology. The relevance of studying the morphology of the stomach is beyond doubt, as indicated by many authors [4, 25].

Despite the extensive amount of research devoted to the age-related constitutional characteristics of men and women, various organs and systems, insufficient attention has been paid to the stomach, as a particular morphological constitution of the organ level. A large number of works have been devoted to the X-ray anatomy of the stomach and the structure of its muscle-connective tissue complex, but all of them were carried out locally and without taking into account the type and pathology [13, 29].

LITERATURE

1. Abdullaev M.R. Diseases of the operated stomach: a review of 99 clinical observations / Abdullaev M.R., Magomedov I.I., // Makhachkala Bulletin of the DSEA No. 1 (18), 2016. – P. 38-41.
2. Balko O.A., Sapozhnikov V.G. On the dependence of the course of chronic gastroduodenitis in children on the type of constitution // Bulletin of the Smolensk State Medical Academy. - 2018 - P. 126-128.
3. Bukanaeva N.S., Nikityuk D.B. Constitutional features of patients with nutrition-dependent pathology // Morphological statements. – 2008. – No. 1-2. – pp. 145-146.
4. Byalovsky Yu.Yu., Davydov V.V. Course of lectures on pathophysiology: textbook for students of medical universities: in 4 hours / Yu.Yu. Byalovsky [and others] – Ryazan, 2018. – Part 1. – 261 p.
5. Velikolug K.A. Modern approaches to the problems of medical and social rehabilitation of gastroenterological patients and disabled people: abstract: thesis. ... dr. honey. Sciences / K.A. Velikolug // – M.: – 2013. – 42 p.
6. Vilkova, I.V. Structural changes in the muscular lining of the stomach as the morphological basis of heterochrony of organ growth in early postnatal human ontogenesis / I.V. Vilkova // Morphology. - 2011. - No. 3.-S. 80-83.
7. Gladkaya V.S., Verigo L.I., Egorova A.T. Assessment of the course of pregnancy and childbirth taking into account the constitutional characteristics of women // Morphological Gazette. – 2008. – No. 3-4. – pp. 111-117.

8. Zhin I.G. X-ray method for diagnosing GERD in children // Collection of materials of the Republican Research and Production Committee. Laboratory of Intelligence. - 2018. - November 23. pp. 25-33.
9. Zashikhin A.L., Timchenko S.A., Pakhtusova N.A., Ozornina O.S. Morphofunctional aspects of reactive transformation of smooth muscle tissue of the stomach during the development of stenosis // Morphology. - 2000. - No. 3.-S. 49-50.
10. Zueva E.G., Kudryashov E.V., Dergousova E.N. Clinical and constitutional approaches to assessing the development of spinal deformity // Morphology. – 2008. – No. 3. – P. 47.
11. Karaeva, V. Yu. Frequency of bleeding in erosive and ulcerative lesions of the upper digestive tract in children / V. Yu. Karaeva // Experimental and clinical gastroenterology. – 2013. – No. 1. – P. 15-19.
12. Klak N.H., Gorbunov N.S., Samotesov P.A. and others. On the issue of the doctrine of the human constitution // Scientific Gazette of BelSU. Series: Medicine. Pharmacy. - 2011. - No. 16 (111). - pp. 33-39.
13. Kobiashvili, M. G. Diagnosis of precancerous changes in the gastric mucosa using narrow-spectrum endoscopy with a magnification function / M. G. Kobiashvili, I. A. Mikhailova, V. N. Ellinidi, I. A. Samusenko // Medical, biological and social psychological problems of safety in emergency situations. –2012. –No. 1. – P. 62-65.
14. Kovshik O.M., Shwefel K.K. Features of the constitution of women suffering from primary open-angle glaucoma // Current problems. morphology: Collection of scientific works. tr., Vol. 7. – Krasnoyarsk, 2008. – P. 42-46.
15. Krivigina E.V. Improvement of methods of treatment of some forms of diseases of the operated stomach / E.V. Krivigina, G.F. Zhigaev // Siberian medical journal No. 3, 2015, - P. 111-112.
16. Kurilovich, S. A. Non-invasive diagnosis of precancerous diseases of the stomach / S. A. Kurilovich, O. V. Reshetnikov, S. A. Krotov, A. V. Belkovets // Novosibirsk. – 2013. –P.65.
17. Levin M.D., Korshun Z., Mendelson G. Pathological physiology of gastroesophageal reflux disease. Hypothesis (literature review). (State Geriatric Center, Netanya, Israel.). "Gastroenterology" No. 5. 2013
18. Lisnyak E.A. Frequency of detection of radiological stages and degrees of functional deficiency in women with rheumatoid arthritis of various constitutions and body types // Current problems. morphology: Sat. scientific tr., Vol. 7. – Krasnoyarsk, 2008. – P. 64-66.
19. Mozerov S.A., Komin Yu.A., Mozerova E.S., Krasovitova O.V. Morphological and clinical changes in gastric cancer after neoadjuvant chemoradiotherapy (literature review) // International Journal of Applied and Fundamental Research. – 2016. – No. 6-1. – P. 59-64;
20. Nafikova A.Sh. Quality of life in patients with gastric and duodenal ulcers/ A.Sh. Nafikova, L.V. Volevach, A.Ya. Kryukova, G.Ya. Khismatullina, A.A. Kamalova. – Ufa: BSMMU Publishing House, 2016
21. Nepomnyashchaya E.A., Petrova M.M., Ryzhkova N.A. Features of purine metabolism in gout in men of different somatotypes // Actual. question medical and new technol.: Sat. scientific Art. – Krasnoyarsk, 2004. – P. 205-208.
22. Olekseenko V.V. Functional results of reconstruction of the digestive tract after gastrectomy / V.V. Olekseenko, S.V. Efetov, V.A. Zakharov, etc. // Surgery.-2017-No. 1 p. 36-41.
23. Osnovin O.V. Features of the course of urolithiasis and extracorporeal lithotripsy in men of different body types: Abstract of thesis. dis. ...cand. honey. Sciences - Saratov, 2008. - 21 p.

24. Pervushin V.V., Masalova A.V., Derkach A.A. Constitution and its role in pathology. classification of constitutional types. concept of diathesis // International student scientific bulletin. – 2020. – No. 6.

25. Rustamov E.A. Morphological changes in the gastric mucosa before and after surgical treatment. Surgery. Journal named after N.I. Pirogov. 2012;(4):20-25.

26. Romanenko A.A.Use of the WL Rees index - N.J. Eysenck in assessing the physiological status of adolescent men // Fundamental Research. – 2015. – No. 1-8. – pp. 1671-1675.

27. Satorov S. Helicobacter pylori and helicobacteriosis: monograph / Ed. S. Satorova. - Novosibirsk: Publishing house TsRNS, 2015. - 96 p.

28. Timofeev E.V., Zaripov B.I., Belousova T.I., Vyutrikh E.V., Reeva S.V., Parfenova N.N., Zemtsovsky E.V., Phenotypic characteristics of boys and girls depending on constitution type and nutrition level, - Vol. 11, No. 1, 2020

29. Kharitonov D.V., Sapozhnikov V.G., Kharitonova L.A. On the constitutional features of gastric and duodenal ulcers in children. Experimental and clinical gastroenterology. 2022;202(6): 36–40. DOI: 10.31146/1682-8658-ecg-202-6-36-40

30. Khloponin, P.A. Ultrastructural analysis of smooth muscle tissue at various times after injury / P.A. Khloponin, Yu-M. Korolev, V.N. Davidenko // Morphology. 2020. - No. 3. - P. 128.

31. Shabalov N.P., Arsentiev V.G., Ivanova N.A. and others. Age-specific constitutional anomalies and diathesis. Consilium Medicum. Pediatrics (Adj.). 2016; 2: 82-85.

32. Apostolos A. Evaluation of resection of the gastroesophageal junction and jejunal interposition (Merendino procedure) as a rescue procedure in patients with a failed redo antireflux procedure. A single-center experience. / A. Apostolos, L. Mats, R. Ioannis, E. Peter, L. Lars, N. Magnus et al.// BMC Surg. 2018 Aug 30;18(1):70. doi:10.1186/s12893-018-0401-8.

33. El-Serag HB, Tran T., Richardson P., Ergun G. Anthropometric correlates of intragastric pressure // Scand. J. Gastroenterol. – 2006. – Vol. 41, No. 8. – R. 887-891.

34. Sun Q., Liang X., Zheng Q. et al. High Efficacy of 14–Day Triple Therapy–Based, Bismuth–Containing Quadruple Therapy for Initial Helicobacter pylori Eradication // Helicobacter. – 2010. – Vol. 15. – P. 233–238.

35. Takahashi M. Quality of life after total vs distal gastrectomy with Rouxen-Y reconstruction: Use of the Postgastrectomy Syndrome Assessment Scale-45 / M. Takahashi, M. Terashima, H. Kawahira, E. Nagai, et al. // World J Gastroenterology / 2017 March 21; 23 (11). - R. 2068-2076

36. Tanizawa Y. Specific Features of Dumping Syndrome after Various Types of Gastrectomy as Assessed by a Newly Developed Integrated Questionnaire, the PGSAS-45. / Y. Tanizawa, K. Tanabe, H. Kawahira, J. Fujita, N. Takiguchi, M. Takahashi et al.// Dig Surg. 2016; No. 33: pp. 94–103.

37. Yamagata Y. Surgical approach to cervical esophagogastric anastomoses for postesophagectomy complications / Y. Yamagata, Y. Kawashima, T. Yatsuoka et al. // Journal of Gastrointestinal Surgery. - 2013. - Vol. 17 (8). - P. 1507- 1511.

38. Yamaoka Y. Mechanisms of disease: Helicobacter pylori virulence factors // Nature Reviews Gastroenterology & Hepatology. - 2010. - N7(11). - P. 629-641.

39. Yuang, Ya. A survey and evaluation of populating-based screening for gastric cancer / Ya Yuang // Biol.Med. – 2013. – Vol. 10. – P. 72-80.

40. Zona P. J-pouch versus Roux-en-Y reconstruction after gastrectomy: functional assessment and quality of life (randomized trial) / P. Zona., T. Mary P. Ignat et al., // OncoTargets and Therapy // 2017 : No. 10; - R. 13-19.