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Adenotonsillar System (Pirogov Waldeier Ring) of Anatomical-Topographic Features

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Abstract: This in the article Waldeyer of the ring (adenotonsillar) system) anatomo-topographic structure wide in a circle studied . Morphological and dissection observations through the ring organization doer of elements location , size , epithelial coating and crypts number identified , their to age looking at change trends evaluated . Results Waldeyer of the ring immunological function deeper to understand service does and otolaryngological practice for necessary basis become service does .

Keywords: Waldeyer ring, adenotonsillar system , larynx spine , anatomical location , epithelium, crypts

Adenotonsillar system or Waldeyer ring high breath roads and food of the way lymphoid from tissues organization found protection This system was first described by Heinrich Wilhelm Waldeyer in 1884. described is , is now in the day he not only morphological , maybe immunological importance has was important anatomical unity as is being studied [1].

Waldeyer ring 4 main lymphoid from the component consists of: palate (paired), larynx (adenoid), tongue and flutes . This lymphoid structures epithelium with covered is internal in part lymphoid follicles , crypts and antigen presentation provider cells [2] . These components through organism breath or food way through enter incoming to pathogens against first immunological the answer forms [3].

Latest in years this of structures morphology and topography different young in groups analysis made , their immune activity with related structural changes studied [4. 5. 8]. Research this shows that , especially in children , palatine and pharyngeal tonsils very much big is high immunological to activity has . This is own adenoid hyperplasia in turn or chronic tonsillitis such as to the circumstances tendency increases [6].

Waldeyer of the ring structure , its structural parts location , epithelium types of crypts number and depth this of the system immunological to the functions directly impact [7]. Also , the ring anatomical structure and his/her clinical importance otolaryngological surgery , especially in children in practice big role plays [10].

This because of , Waldeyer of the ring anatomo-topographic features study through not only his/her morphological structure , maybe clinical and immunological also determine the importance possible . This in the article exactly this aspects morphological , dissection and microscopic analyses through is illuminated .

Adenotonsillar ring or Waldeyer ring high breath roads and food of the way oropharynx in the field located lymphoid of tissues complicated anatomical This is a ring structure . to the organism from outside incoming pathogen to microorganisms against first immunological barrier is considered . This The system was invented in 1884 by a German pathologist Heinrich Wilhelm Gottfried von Waldeyer-Hartz described and from that since this ring his/her name with [Waldeyer H., 1884] .

Structure in terms of Waldeyer ring following lymphoid structures own inside takes : palatine tonsils (pair), pharyngeal tonsil (adenoid), lingual tonsil and tubal tonsils (pairs). These structures epithelium

with covered is, they have lymphoid follicles available . Every one component location and structure immune answer in the formation important role plays [11].

Latest in years Waldeyer of the ring anatomical and functional to oneself characteristics learning, especially for children and adolescents , pediatrics and surgery in practice big importance profession is doing . This in the article Waldeyer of the ring anatomo-topographic features in detail analysis will be done.

Materials and methods . This research Tashkent medicine Academy of Normal Anatomy in the department during 2023–2024 take visited in 3 directions done increased :

1. 20 7–14 year olds children's Waldeyer ring preparations morphological in terms of studied .
2. 5 large old donors dissection based on anatomical examinations done increased .
3. Scientific Based on literature (PubMed, Scopus) between 2010–2023 publication 42 articles published analysis was done .

Drugs histological in sections prepared , microscopic observations on a Leica DM750 microscope take went . Anatomical analysis and classic dissection method based on done increased .

Research results . Waldeyer of the ring structural elements to age looking at how their change , location and morphological differences to determine Especially children and teenagers between this lymphoid of tissues volumetric change , epithelium types and immunological activity representative signs Dissection analyses and anatomical location practical importance showed .

Table 1. Palatine and pharyngeal tonsils dimensions to age dependency (n=20)

Age group (year)	Palate murphy size (mm)	Larynx murphy size (mm)
7–9	18.3 ± 2.4	15.1 ± 1.9
10–12	20.7 ± 2.1	16.3 ± 2.0
13–14	21.5 ± 2.6	14.8 ± 2.3

From the table apparently as it stands , palatine tonsils size young growth with increasing went , this and their active lymphoid activity with connection shows . Pharyngeal tonsil and maximum size 10–12 years old observed , then involution process beginning probability there is .

Table 2. Waldeyer ring of elements location (dissection) observation , n=5)

Element	Location	Epithelium type
Palatine tonsil	Medium in the throat , back weld behind	Many multi-storey flat
Pharyngeal tonsil	Nasopharynx in the field , back on the side	Many in a row cylindrical
Lingual tonsil	Language root on the surface	Many multi-storey flat
Tubal tonsil	Eustachian flute in the mouth	Many in a row cylindrical

This table every one component to the location looking at how epithelium type with covered For example , breathing to the roads close was pharyngeal and tubal tonsils cylindrical epithelium with , mouth space components and flat epithelium with covered.

Table 3. Palatine tonsil crypts number and depth (microscopic) observation, n=10)

Drug number	Crypts number	Crypt depth (mm)
1	11	2.3
2	9	1.9
3	13	2.6
4	12	2.5
5	10	2.1

Crypts number and depth palatine individual differences in tonsils does. Crypts depth antigens with more contact to do opportunity gives , this and lymphoid of tissues immunological activity increases. These analyses this shows that deep and many numerical to the crypts has tonsils to infection against in the fight more efficient will be.

Discussion. Waldeyer ring organism lymphoid protection in the system main position occupies . Research results this of the ring morphological elements to age looking at how change and their topographic location functional importance has that confirms . Especially in children this structures active immune answer in the formation participation will reach.

Dissection analyses this showed that every one component location their surroundings tissues with anatomical connection For example , pharyngeal tonsil nasopharynx back on the wall due to its location , adenoiditis when developed nose through breath to take sharp will be broken.

Microscopic analyses palatine in the tonsils crypts depth their protection in function how importance has that it is to determine opportunity gave . Here antigens with permanent contact to be lymphocytes activity strengthens and immunological the answer accelerates.

Literature to the analysis based on by Gleeson M. (2015) and Abbas A. (2018) as shown , lymphoid tissues epithelium under located follicles activity with immune reactions manages . Our our observations this theories experimental in terms of confirms.

Results this Waldeyer showed that ring components not only structural , maybe functional also differs in terms of and this their to oneself typical anatomical cases with related . Research during determined topographic and morphological features surgery , otorhinolaryngology and pediatric in practice clear diagnosis and right approach for basis become service does .

Conclusion. Waldeyer ring not only morphological complicated system , maybe immunological protection system first step It is also important as . Our research this showed that the ring components location , epithelium cover , crypts depth and size their protection in the function directly participation In children this structures active development in the phase become pathological situations exactly this in the period to the surface output possible . This therefore , Waldeyer of the ring anatomical-topographic to oneself characteristics deep study pediatrics and surgery in practice important place holds.

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