

CLINICAL ANALYSIS OF PATIENTS WITH NECK CYSTS IN DEPARTMENT OF PEDIATRIC OTOLARYNGOLOGY MEDICAL UNIVERSITY OF WARSAW IN YEARS 2011-2014

Monika Jabłońska-Jesionowska, *Lidia Zawadzka-Głós

Department of Pediatric Otorhinolaryngology, Medical University of Warsaw, Poland
Head of Department: Lidia Zawadzka-Głós, MD, PhD

Summary

Introduction. On the neck in children often appears to variety masses. Most of them are benign lesions due to inflammatory processes. There are also malignancy changes, but most frequently occurs congenital cysts.

Aim. The aim of this study was to analyze clinical data of 42 children admitted to the ENT Pediatric Department of Medical University of Warsaw with initial diagnosis of cysts of the neck.

Material and methods. The records of 42 patients were analyzed according to the age, gender, location of changes, the type of treatment and long-term results.

Results. Among a group of 42 children in 26 changes were localized in the midline of the neck, in 16 in the lateral regions of the neck. In 26 children with changes in the midline in 22 cases the congenital malformation were found. Among the 15 children with changes localized in the lateral regions of the neck in 14 cases congenital defects were found. Most frequent congenital anomalies of midline was thyroglossal duct cyst and in laterocervical region cysts of second branchial apparatus. All children underwent surgery in the ENT Department.

Conclusions. Cystic changes of the neck are the most common congenital malformations. Changes located in the midline most often occur in the first decade of life, changes in the lateral regions of the neck over the first decade of life. Complete surgical removal of the cysts prevents recurrence. Each removed mass requires histopathological examination.

Key words: congenital malformation, cysts, neck, children, cystis bronchiogenes

INTRODUCTION

On the neck in children often appears variety masses. Most of them are benign lesions due to inflammatory processes. Lymphadenopathy also occurs in the course of malignancy. In addition to the enlargement of lymph nodes in the neck, there are also solid and cystic changes. All neck masses require differentiation and exclusion of neoplastic processes. Most of the cystic changes are congenital origin. They are formed within the first month of intrauterine life, but the clinically manifest themselves in different groups of children according to the age, mostly in the course of infections of the upper respiratory tract. They are difficult to diagnose, do not have the specific signs in the imaging studies, appear at different ages, and are often becomes inflamed. The location on the neck is the most characteristic feature, which suggests the diagnosis. The midline neck masses derived from the gastrointestinal thyroglossal tract, in laterocervical regions changes come from the branchial apparatus.

AIM

The aim of this study was to analyze clinical data of 42 children admitted to the ENT Pediatric Department

of Medical University of Warsaw with initial diagnosis of cysts of the neck.

MATERIAL AND METHODS

In the period 2011-2014 to the ENT Pediatric Department of Medical University of Warsaw 42 children was admitted suspected of cysts of the neck. The records of patients were analyzed according to the age, gender, location of changes, the type of treatment and long-term results. 40 children underwent surgery to remove changes: 38 in the ENT ward, 2 in pediatric surgery ward. The final diagnosis was based on histopathology.

RESULTS

Among a group of 42 children admitted to our ENT Department suspected of the neck cysts in 26 children (61.9%) changes were localized in the midline of the neck, in 16 (38%) in the lateral regions of the neck. In 26 children with changes in the midline in 22 (84.6%) cases the congenital malformation were found: 18 thyroglossal duct cysts and 4 dermoid cysts. In the next 4 cases after surgery atheroma in histopathology was diagnosed. Among the 15 children with changes

localized in the lateral regions of the neck in 14 (87.5%) cases congenital defects were found: 10 cysts of the branchial apparatus, 2 lymphangiomas, 1 laryngocele, 1 pulmonary hernia of the cervical fascia, 1 atheroma and 1 post-traumatic hematoma were found. Distribution of changes shows table 1 and 2. Most frequent congenital anomalies of midline was thyroglossal duct cyst, occurred in 12 girls and 6 boys. The children were between 1 and 6 year old. Dermoid cysts were recognized after completely removal of the changes, based on histopathology in 4 boys aged between 1 to 3. Before surgery the ultrasound image of the neck in all children was done. We also determined the location of the thyroid lobe. All children underwent surgery in the ENT Department. Excision of the cyst with tract penetrating the hyoid bone and the central part of bone does not give a recurrence of the disease. In 2 cases the core of the hyoid bone was removed during reoperation because of recurrence. In one child in spite of the removal of the hyoid bone there was a recurrence of cyst, reoperation showed tract penetrating the base of the tongue.

In all children with cysts located in the lateral regions of the neck after ultrasound image there were no clear answer as to the nature of the change. To identify changes in all children, CT scan with contrast was performed. In 7 children due to doubts as to the nature of the change and penetration, MRI was done. There were 2 cases of lymphangioma cavernosum, 1 laryngocele, 2 cysts originating from the fourth pouch penetrating pyriform sinus, 1 thymus duct, 1 pulmonary hernia of the cervical fascia. In 1 case a post-traumatic hematoma was recognized intraoperatively. The most common change was the lateral neck cyst diagnosed in 7 children: 6 boys and 1 girl (1, 3, 4). All children ranged in 10 to 16 years of age. In all cases cysts were found on the right side. The histopathology results show cystis branchiogenes. There were cysts of second branchial apparatus located along the sternocleidomastoid muscle. The children

Table 1. Distribution of the laterocervical malformations.

Type of malformation	Number
Cystis branchiogenes	10
Lymphangioma cavernosum	2
Laryngocele	1
Pulmonary hernia of the cervical fascia	1

Table 2. Distribution of the midline malformations.

Type of malformation	Number
Thyroglossal duct cysts	18
Dermoid cysts	4

were operated without recurrence (3). In 2 cases cysts derived from the fourth pouch, located on the left side of the neck in the thyroid region with fistula penetrating into pyriform sinus. There were 1 girl and 1 boy in the age of 5 and 8. In one case thymus duct was found, the change extending from the mandibular angle of the upper mediastinum on the right side of the neck. The child is 2 years old and still waiting for surgery. Children with a diagnosis of lymphangioma cavernosum were transferred to another hospital. In all children cysts occurred in the course of infection of the upper respiratory tract and usually diminished during conservative treatment, disappearing and reappearing during re-infection. In 2 cases during an interview in addition to the infection trauma was found.

DISCUSSION

The most cysts of the neck in children are congenital. In our study on 42 children admitted to the ENT Pediatric Department in 36 (85.7%) cases congenital malformation were diagnosed. These changes are divided due to the location on the neck: laterocervical malformations and malformations of the midline. This division is related to the embryological development within the first month of intrauterine life.

In the midline most often the tract cysts occurred. It arises from the thyroglossal duct, extends from the foramen cecum of the tongue to developing thyroid in midline of the neck and disappears at 6 weeks of gestation. If any part of the thyroglossal tract is not involved it may form the cyst. Treatment consists of removal of cysts with the central part of the hyoid bone (Sistrunk operation). Such removal does not cause relapse. In our material in 2 cases there was the relapse due to the lack of visibility of the wire leading to the hyoid bone. Typically patients with thyroglossal tract duct are in the age under 10 years (9). Our children were 2-6 years old.

Changes located in the lateral neck regions are associated with the development of the branchial apparatus between 4 -6 weeks of fetal life. Anomalies arise from I, II, III, IV pouch. Frequently occurring anomalies derived from the second branchial apparatus (1-3). In our study 7:3. The changes are located along the sternocleidomastoid muscle, lateral to the carotid sheath. This occurs most frequently over the first decade of life, more often on the right (8, 9). Our patients were older than 10 years, all masses were found on the right. Proper diagnosis should be done according to the location on the neck and ultrasound image. Treatment consists of complete removal.

Anomaly derived from the third branchial apparatus is thymic cyst. In embryologic development thymopharyngeal duct connects the pharynx and the upper mediastinum and disappears at the first month of gestation. The incomplete involution of this duct leads to form

the cysts. Location of the cyst on the neck between the angle of mandible and the upper mediastinal suggests the thymic cyst. The treatment is surgical removal. Our one patient in age 2 is waiting on surgical treatment. The diagnosis is based on the CT scan and characteristic location on the neck.

Difficult diagnosis was in 2 children with anomalies derived from the fourth pouch. The changes on the neck occurs typically on the left side, near thyroid gland, next to the recurrence laryngitis (10). Only in one case we founded the internal opening in the pyriform sinus. The treatment of choice is surgery.

Haemangiomas, lymphangiomas, vascular malformations are common anomalies on the neck in children. These lesions presented on the neck as swelling in the posterocervical regions, increase in size as the children grows and rapid increase with upper tract infection. The masses are painless. It's similar as cysts. These lesions are quite difficult in diagnostic, there are no significant features on ultrasonography images, CT or MRI. The clinical features are the most significant. Due to vascular anomalies the treatment is difficult, the surgery is preceded by sclerotherapy and often not radical.

CONCLUSIONS

1. Cystic changes of the neck are the most common congenital malformations.
2. Changes located in the midline most often occur in the first decade of life, changes in the lateral regions of the neck over the first decade of life. The first ap-

pearance of the changes associated with infection of the upper respiratory tract.

3. Location of changes on the neck often suggests the diagnosis.
4. The surgery is the treatment of choice. Complete removal of the cysts prevents recurrence.
5. The ultrasound image is the procedure of choice for the diagnosis of cysts. In the case of vascular changes on the neck MRI is necessary. To visualize the course of the fistula CT or MRI is necessary.
6. Each removed mass requires histopathological examination. □

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Correspondence to:
*Lidia Zawadzka-Głós
Department of Pediatric Otolaryngology
Medical University of Warsaw
24 Marszałkowska Str., 00-576 Warsaw, Poland
tel./fax: +48 (22) 628-05-84
e-mail: laryngologia@litewska.edu.pl