The Authors of this study present a case of a 13-month old child subjected to surgical intervention for a cervical thymic cyst. The origin of lesions in children is usually associated with remnants from the development of the fetal thymus gland. When the tumor attains significant size, especially in the presence of clinical symptoms, such as respiratory disturbances and problems with feeding, surgical management is required.

In spite of the rarity of thymic cysts, it should be considered in cases of differential diagnosis for neck tumors in children. Proper diagnosis is usually possible after the histopathological evaluation of removed tissues. The cervical approach enables removal of the entire lesion, even if partially localized in the thoracic cavity.

**Key words:** thymus, thymic cyst

Cervical tumors, which are derived from residual tissues of the descending thymic gland during fetal development, are rare pathological lesions in children. Histopathological verification of the removed tissues enables clinicians to diagnose the nature of the lesion. In children, cystic lesions of the neck should be suspected of possible lymphangioma, hemangiona or neoplasm. Thus, angiography is helpful in determining the type of tumor, as well as planning the technical aspects of the surgical procedure. Confirmation of the presence of the thymic gland in the anterior mediastinum is also important, since removal of the only remaining thymic tissue during the initial years of a child’s life might unfavorably influence the immunological development.

**CASE REPORT**

A 13-month female child (H. P. history number 59976/122) was admitted to the Chair and Department of Cardiosurgery and General Pediatrics Surgery, Medical University in Warsaw for suspicion of a left-sided cervical tumor. The cervical prominence was observed by the child’s mother one month before hospitalization. Per the mother’s report, while the child cried, significant protrusion of the tumor was observed.

Physical examination revealed the presence of a painless, soft tumor covering the left side of the neck from the mandibula up to the left clavicle. The skin was unchanged. Ultrasound examination (aparat Philips/HDI 4000) revealed a cystic lesion filled with fluid and changed size and shape while the child cried. Angiography (Light Speed Pro16, General Electric, USA) confirmed the presence of a cystic lesion filled with fluid (density: 15-24 H and size: 30 x 20 mm in the transverse plane). The above-mentioned mass stretched along the carotid vessels, penetrated the anterior mediastinum, and joined the thymus gland. The tumor displaced the tracheal gland towards the right, modeling the external carotid artery at the level of the nasopharynx (fig. 1a and b).

After diagnosis of a cervical and mediastinal cyst, the child underwent surgery. The patient was placed in the supine position with a roller under the neck. A short transverse inci-
sion (3.5 cm) on the left cervical side, parallel to the mandibular branch was performed. After cutting the platysma muscle and maintaining all surrounding anatomical structures, a cystic mass (16x6 cm in size) was observed. The mass stretched from the submandibular gland and trachea to the anterior mediastinum (fig. 2 and 3). The intrathoracic pole of the tumor was characterized by the appearance of thymic tissue. The postoperative course proved uneventful. The cosmetic effects of the procedure were not significant.

The postoperative histopathological examination revealed the presence of a multilocular thymic cyst (cystis multilocularis thymi). The microscopic picture showed a thin-walled cyst of glandular tissues with select sections of stratified squamous epithelium. The wall of the cyst consisted of fragments of thymic texture and small cystic lesions.

Control ultrasonography performed six months after the operation showed no fluid collections in the cervical and mediastinal regions.

DISCUSSION

Cysts derived from the thymus are rare tumors. Rieker and co-authors (1) demonstrated that the above-mentioned lesion was first described by Lieutaud in 1832. Approximately, 100 publications concerning this issue have
During the clinical examination, one can find the presence of a soft, poorly limited, mobile, painless tumor localized to the anterior triangle of the neck. The tumor stretched from the angle of the mandible, penetrating under the sternocleidomastoid muscle, and to the retropharyngeal space. The posterior surface adheres to the carotid artery. In 50% of cases, the tumor penetrates the anterior mediastinum (11), where it directly connects with the thymic gland or indirectly via thymic-pharyngeal duct remnants.

Thymic cysts are usually diagnosed in children and adolescents. Clinical symptoms also develop during the initial period of life. The above-mentioned is associated with compression of surrounding anatomical structures. In infants and children, one can observe respiratory disturbances associated with tracheal compression or feeding problems, due to the presence of the tumor in the retropharyngeal space. Moreover, significant enlargement of the cyst is often secondary to fluid accumulation or internal bleeding. Significant growth was also observed in cases of injury, inoculation, or upper respiratory tract infections (6, 9, 12).

Thymic cysts localized to the subglottic area might be responsible for respiratory disturbances and stridor during the neonatal period (10). Some authors have also described the coexistence of acquired multilocular thymic cysts with mediastinal teratoma in teenaged children (13).

When considering the cause of thymic cysts, one should mention congenital developmental disturbances of the thymic-pharyngeal ducts and the splitting of thymic fragments observed during fetal life, as well as acquired lesions connected with progressing degenerative changes observed in Hassal’s corpuscle and thymic stroma (7). Thymic cysts can contain be uni- or multilocular. The above-mentioned are usually congenital, although one should not forget about the possibility of acquired cysts associated with chronic inflammatory conditions of unknown origin. Multilocular thymic cysts have been described in adult patients with lupus erythematosus, myasthenia, Sjögren’s syndrome, aplastic anemia, HIV infections, and those exposed to mediastinal radiotherapy (8).

In most cases, thymic tissue remnants within the neck do not cause any clinical symptoms, although their occurrence is estimated to be about 30% from autopsy examinations (9). Mediastinal lesions are usually diagnosed accidentally during chest X-ray examinations. Sometimes, thymic cysts are manifested by the appearance of lateral cervical tumors: 70% on the left side, 20-30% on the right, and few are localized in the midline (1, 10).

During the clinical examination, one can find the presence of a soft, poorly limited, mobile, painless tumor localized to the anterior triangle of the neck. The tumor stretched from the angle of the mandible, penetrating under the sternocleidomastoid muscle, and to the retropharyngeal space. The posterior surface adheres to the carotid artery. In 50% of cases, the tumor penetrates the anterior mediastinum (11), where it directly connects with the thymic gland or indirectly via thymic-pharyngeal duct remnants.

Thymic cysts are usually diagnosed in children and adolescents. Clinical symptoms also develop during the initial period of life. The above-mentioned is associated with compression of surrounding anatomical structures. In infants and children, one can observe respiratory disturbances associated with tracheal compression or feeding problems, due to the presence of the tumor in the retropharyngeal space. Moreover, significant enlargement of the cyst is often secondary to fluid accumulation or internal bleeding. Significant growth was also observed in cases of injury, inoculation, or upper respiratory tract infections (6, 9, 12).

Thymic cysts localized to the subglottic area might be responsible for respiratory disturbances and stridor during the neonatal period (10). Some authors have also described the coexistence of acquired multilocular thymic cysts with mediastinal teratoma in teenaged children (13).

Differential diagnosis of cervical tumors should also comprise the possibility of lymphangioma, hemangioma, branchiogenic cyst, lymphadenopathy, benign or malignant thyroid, parathyroid, lymphatic system, and other soft tissue tumors, as well as thyroglossal duct cysts (7, 10). One should also bear in mind that some neoplastic lesions, such as Hodgkin’s lymphoma, thymoma and seminoma, might contain cystic elements.

When determining the origin and nature of the cervical and mediastinal tumor, ultrasonography, computer tomography, and magnetic resonance imaging might prove helpful. Based on standard radiological examinations, the differentiation of cystic and solid lesions is practically impossible. The presented patient was subjected to angioCT, which enabled determination of the character and localization of tumor relative to carotid vessels, as well as excluded communication between the cyst and cir-
culatory system. In case of an ectopic thymic gland, one should determine whether the tumor is also localized to the anterior mediastinum prior to surgical intervention. Removal of the only thymic gland during the initial years of a child’s life might negatively influence immunological development. Considering such situations, partial excision of the thymic gland might prove sufficient and alleviate symptoms associated with compression of surrounding anatomical structures without negative effects on the immunological system.

REFERENCES

10. Saggese D, Compadretti GC, Cartaroni C: Cervical ectopic thymus: a case report and review of the literature; giacomoceroni@libero.it

Received: 3.11.2006 r.
Adress correspondence: 01-184 Warszawa, ul. Działdowska 1