Clinical Features, Diagnosis, And Treatment Methods of Congenital Muscular Torticollis

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Abstract

At present, congenital deformities of the neck remain one of the actual problems in pediatric orthopedics. Indications for conservative or surgical treatment of these pathologies are determined based on the patient's age, and staged rehabilitation is carried out after surgery. The study included 58 patients aged from 1 to 18 years who underwent treatment. In cases of congenital muscular torticollis, performing surgical treatment early, starting from the age of 1 year, allowed us to prevent further complications.ик.

Keywords: Children, torticollis, treatment methods.

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1. Introduction

During the period of rapid development, the human lifestyle is also changing significantly. Along with the conveniences entering our lives, food enriched with various chemicals is having a negative impact on the human body. This affects not only the mother's организм, but also leads to various pathological changes in the организм of the unborn child.

These pathologies, especially torticollis, have become a relevant issue for orthopedic doctors today. Timely diagnosis of this disease, selection of treatment tactics based on the patient's age, and проведение of the rehabilitation stage have not yet been fully clarified. Therefore, the data presented in the literature remain controversial. Among neck pathologies, congenital muscular torticollis has particular importance, as it ranks third among orthopedic diseases after congenital hip dislocation and congenital clubfoot [2,4]. The causes of congenital torticollis are described differently in various sources. In general, it can be summarized that these pathologies are mainly based on three major factors: exogenous, endogenous, and genetic factors.

Exogenous factors: These include environmental, physical, and chemical factors, improper lifestyle, parental harmful habits such as smoking and alcohol consumption, various types of stress, infections, and occupational diseases. Endogenous factors: These include maternal diseases such as anemia, endocrine disorders, gastrointestinal diseases, uterine conditions (fibroids, cysts, abnormal amniotic fluid levels or quality), toxicosis, and genetic disorders. All of these are considered potential factors, but they play an important role in the development of the disease in the child. It should be noted that, to date, there is no single definite factor identified that causes congenital pathologies, including congenital muscular torticollis.

According to the authors, congenital torticollis in children accounts for 12.4% of other pathologies. [4,7]. According to data from other authors, it occurs in up to 4% of cases [1]. Congenital muscular torticollis in infants remains one of the complex problems for orthopedic specialists, and its diagnosis and differentiation are still challenging; it is not always possible to make a complete diagnosis. Considering the value of this information, it should be emphasized that a predisposition to congenital muscular torticollis can be identified during infancy. Detecting it in infants up to 2 weeks old is somewhat difficult, but by carefully palpating the sternocleidomastoid muscle along its length, a firm, immobile nodule can be identified, which gradually increases in size over time [5]

According to some literature, injuries to the neck area of infants during delivery have been included among congenital pathologies, although these are actually birth-related traumas and represent acquired, not congenital, conditions. Rapidly advancing medicine and the use of modern diagnostic methods have greatly facilitated the work of orthopedic specialists [3]. Ultrasound examination, applied not only after birth but also during the prenatal development of the fetus, has shown positive results in detecting pathologies. For example, umbilical cord entanglement around the fetal neck can disrupt the development of the sternocleidomastoid muscle and lead to the formation of connective tissue, which later, after birth, results in thickening of the muscle and causes torticollis.

There are no definitive indications for conservative or surgical treatment of congenital muscular torticollis. In the literature, authors do not specify the patient's age for conservative or surgical management, and this issue still awaits clarification. Some authors recommend surgery only after the age of 3–4 years [2,6]. Some authors recommend performing surgical treatment after the age of 2 years, with conservative management applied until that age. Other authors, however, suggest carrying out surgical intervention before the age of 1 year [1].

Objective. To improve the treatment outcomes in congenital muscular torticollis.

Methods

Our study is based on the analysis of 58 patients aged 1 to 18 years who were treated at the Department of Traumatology, Orthopedics, and Neurosurgery, 3rd Clinic of Tashkent State Medical University, between 2024 and 2026. Of these, 25 were girls and 33 were boys. Left-sided torticollis was observed in 31 patients, right-sided in 24 patients, and bilateral pathology in 2 patients.

Examinations included clinical assessment, ultrasound, and radiographic evaluation.

Results and Discussion

Although clinical examination is not particularly difficult for orthopedists, it should be noted that diagnosing this pathology in many infants can be somewhat challenging. Starting from the second week of life, the infant is fully undressed in a standard-temperature examination room. Both of the infant's arms are gently positioned close to the body and stabilized, while the head is supported and suspended in the doctor's hands, allowing full access to the neck area. The head is then slowly moved forward to the right, then to the left, forward again, and backward. Next, the neck region is carefully inspected, and palpation is performed along the direction of the sternocleidomastoid muscle without haste, identifying any firm, immobile nodules in the muscle. Only after this clinical assessment is the area examined using ultrasound.

As the child grows, the clinical signs become more pronounced. In unilateral cases, the head tilts toward the affected side (if the affected area is attached to the sternocleidomastoid muscle) and the face turns toward the healthy side (if the affected area is attached to the sternal part). In many cases, both muscle attachments become thickened; in our observation, this occurred in 56 patients. Shoulder asymmetry develops, and facial features, including the jaw and nose, become deformed, while the soft tissues of the face undergo atrophy. As the child gets older, the deformity worsens, leading to misalignment of the cervical vertebrae, which can result in static scoliosis. In older children, this condition directly affects psychological well-being, causing them to avoid interaction with peers.

Ultrasound examination was performed in all patients under 1 year of age, totaling 21 patients.

Radiographic examination was performed in all 58 patients to exclude the osteogenic form of torticollis and to identify or rule out cervical vertebral deformities, vertebral synostosis, additional cervical vertebrae, and ribs. Various degrees of spinal misalignment were observed on the radiographs. Vertebral synostosis was detected in 1 patient, and an additional cervical rib was found in another patient.

Treatment. Treatment of congenital muscular torticollis was carried out using conservative or surgical methods depending on the child's age. Conservative treatment was initiated immediately after diagnosis, starting from the infant's 10th–12th day of life. In infants, gentle physiotherapy exercises, relaxing massage, and positioning the face toward the healthy side against a wall were performed, encouraging the infant to move the head independently toward the light. Corrective pads were placed on the affected side to aid proper positioning. It should be noted that procedures such as electrophoresis and paraffin therapy are not recommended for infants. After infancy, treatment proceeds to the second stage, which includes toning massage on the healthy side, relaxing massage on the affected side, physiotherapy exercises, potassium iodide electrophoresis, and other physiotherapeutic procedures, along with the use of a Shantz cervical collar. These interventions are carried out gradually up to 1 year of age. During this period, parents are informed that the condition may not fully resolve with conservative therapy alone and that surgical intervention may be necessary. In our observation, 21 patients under 1 year of age received conservative treatment. Positive results were achieved in only 5 of these patients, while the remaining 16 patients underwent surgical treatment after the age of 1 year. Surgical treatment of congenital muscular torticollis was performed in 53 patients.

Surgical technique: The patient is placed in the operating room under general anesthesia, with a bolster positioned under the shoulders to elevate them, allowing slight backward tilt of the head and opening of the neck. The surgical area is disinfected with antiseptic solutions and bordered with a sterile drape. The patient's head is tilted to the opposite side. A 3–5 cm incision is made through the skin 2 cm above the sternum, and the muscle fibers are exposed using sharp or blunt dissection. The sternal and clavicular heads of the muscle are separated and placed on a sterile cloth, secured with a clamp. The portion of the muscle attached to the mastoid process is also isolated and secured similarly. When the cloth passes through all three heads and is gently pulled, the fibers move synchronously, facilitating precise cutting by the surgeon. Once the fibers and fascia are fully released, muscle tension is eliminated, allowing the head to achieve hypercorrection without restriction. Hemostasis is performed, the wound is sutured, and an aseptic dressing is applied. A Shantz cervical collar is placed on the patient's neck. Two to three days after surgery, a thoracocranial plaster cast is applied for 1 month. The cast is removed after 1 month.

The rehabilitation phase begins 2 months after surgery. Treatment includes massage, which should be applied not only to the neck but also to the facial areas to counteract soft tissue atrophy, physiotherapy exercises, electrophoresis with lydase, and one course of paraffin therapy lasting 10 days. The cervical collar is worn continuously for 6 months. During this 6-month period, three courses of rehabilitation procedures are performed. It should be emphasized that patients who underwent surgery at an early age, specifically at 1 year old, recovered without secondary changes compared to older patients.

Conclusion

1. Thus early diagnosis of congenital muscular torticollis and timely implementation of conservative or surgical treatment yield positive outcomes.

2. Performing surgical intervention before the age of 1 year is considered appropriate.

3. Postoperative rehabilitation and wearing a cervical collar for 6 months help prevent the development of disease-related complications.

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