

Treatment of Congenital Muscular Torticollis in Japan

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It has been reported that the incidence of congenital muscular torticollis is slightly higher in Japan (about 3%, Ito, 1956), (1.94%, Kojima, et al., 1956), (1.7%, Kawamura, et al., 1972) than in western countries. There is no outstanding sex difference ; however, the right side is more frequently affected than the left in these reports of incidence.

1. Conservative treatment

The mainstay of the therapeutic policy for infantile muscular torticollis has been a conservative approach. According to a standard practice, the affected area is protected for one month following birth, after which massage, manual correction, and various methods to prevent secondary deformities, such as plagiocephaly, are applied. Attempts are made to maintain the corrected posture by using special equipment (e.g., corrective pillows). Tanabe et al. (1964) and Shinoda et al. (1969) conducted comparative studies on those patients who had massage or manual correction and those who had no treatment. They showed that these therapeutic approaches were ineffective and even harmful by increasing the risk of adhesion of the tissue around the sternocleidomastoid muscle. Thus, massage and manual therapy were thought to be contra-indicated. The current standard practice in Japan is continued observation up to the age of one year, because, as reported by many, about 90% of the patients with muscular torticollis recover spontaneously by age two.

Shinoda, et al. (1965) proposed manual myotomy to replace the then conventional massage or manual correction. This procedure was indicated for those acute cases in which the rotation of the cervical vertebrae is severely limited, where the size of the nodule is greater than that of the thumb, and where the acromion-mental distance is three finger breadths or more. Patients were selected around 20 days after birth when the granulation process reaches the plateau at the lesion and the coarseness of the texture of the granulation becomes most prominent. Beyond this stage, the granulation tissue become fibrous and is transformed into a hard cicatricial cord-like structure, thus posing a formidable problem for manual myotomy.

Kasai's procedure (1971) is representative of manual myotomy: the affected child is placed in a supine position with his head and neck regions exposed on the examination table and his shoulders firmly held by a surgical assistant; the surgeon holds the head section with both hands, turns it to the side to separate the clavicular portion, followed by severance of the sternal limb by rotating the head. When the myotomic procedure has been successful, an indentation may be felt at the site where the muscle has been disrupted; and the restriction on neck movement that had persisted up to then has been eliminated, thus permitting free movement of the neck.

Manual myotomy was used in many institutions until the latter half of the 1970s; but at present the majority of orthopedists do not perform it because many patients undergo spontaneous correction. Although a few in number, complications such as clavicular fractures, hemorrhages of the external auditory meatus, and accessory nerve paralysis have been reported in association with the method. The procedure requires a certain level of sophistication, and there is concern that the psychological effects on newborn infants may be considerable. The current common practice is to observe the clinical course starting at the neonatal stage. The patient's family is clearly informed that massage is not needed, that about 90% of the cases undergo spontaneous correction, and provided with information on specific childcare practices. It is important that this information include the following :

- I Secondary disturbances caused by postural reflexes, such as ATNR should be prevented
- I Systemic development (including steadying control of the head region) should be promoted, with special emphasis on positioning while sleeping, holding, dressing and undressing, nursing, and playing.
- I Excessive extension of the affected side of the neck is to be avoided and efforts should be made for relaxation of the infant.

2. Surgical procedures

Surgical treatment for muscular torticollis was reported in Japan as early 1923 (Kageyama, et al.) and 1928 (Nakura, et al.). Maeda (1942) examined the resulting details of the procedures conducted at Keio University Medical School, and reported that among the surgical procedures, the results of the Lange method (Hohmann, 1904) , (severance of the upper end of the sternocleidomastoid muscle) were poor due to the procedure itself and not due to the postoperative care. He subsequently evaluated a myotonic procedure in which both ends were left free (based on the method by Riedinger et al.) , and stated that the results were excellent.

Based on the periodic screening of children between birth and 3 years conducted at the National Okayama Hospital (now the National Okayama Medical Center), Tanabe (1981) reported that the incidence of muscular torticollis for which a surgical procedure is indicated was 0.08% of the population. The timing of surgical treatment has varied according to the assumed time limit for spontaneous correction: one year, 18 months, and 2 to 3 years.

Surgical approaches have included dissociation of the sternocleidomastoid muscle (severance of the upper or lower end, or both ends), total or partial excision of the sternocleidomastoid muscle (Mikulicz, 1985), plastic elongation of the sternocleidomastoid muscle. Tanabe (1981) listed several recommendations based on the evaluation of his own clinical cases. Myotomy of either upper or lower muscular end alone is often insufficient to eliminate contraction. Total excision is satisfactory, but for those over the age of 3, partial excision below the site of bifurcation should be sufficient. Cranial deformation does not undergo spontaneous correction as much as expected after surgery. If contracture is corrected before the age of 10, facial asymmetry can be expected to correct spontaneously.

Tanabe (1981) also warned that the site of the transverse nerve in the neck and on the lateral side of the clavicular branch should be confirmed. Because 43.9% of the accessory nerve also penetrates the sternocleidomastoid muscle (Yoshizaki, 1961), the placement of this nerve should be confirmed to avoid injury. Kasai emphasized the significance of complete severance of the fibrous tissue at the ventral side, using the omohyoid muscle that runs transversely on the dorsal side of the sternocleidomastoid muscle as an index. Tanabe concurred with this statement, and also stressed the importance of complete excision of the fibrous tissue to prevent a recurrence.

Results of Treatment Practices Survey

Questionnaires regarding treatment practices for congenital muscular torticollis were sent to 208 orthopaedic surgery facilities in Japan in September 2001. The response was 49% (102 of 208). Only 2 (3%) of 102 do manual myotomy, 1 (1%) does massage, and the remainder do only observation as conservative treatment. Observation periods ranged from less than age 1 year to 10 years : < 1yr = 4 (5%), 1yr = 36 (46%), 2yrs = 19 (24%), 3yrs = 16 (20), and > 3yrs = (5%). Timing of the surgery was similar to the observation periods: before age 1 = 3 (3%), ages 1 to 3 = 63 (72%), and older than age 3 = 21 (24%). Procedures used were inferior edge release = 58 (60%), superior and inferior edge release = 19 (20%), superior edge release = 2 (2%), subtotal resection = 13 (13%), plastic elongation = 2 (2%), And other procedures = 3 (3%).

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