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TRIGGER THUMB IN INFANCY

A. P. PATEL, F.R.C.S.E.

Department of Orthopaedics, The West Hill Hospital, Dartford, Kent

STENOSING tenovaginitis of the flexor tendons of the hand causing trigger or snapping finger in adults is a well recognised condition, but in young children is often misdiagnosed.

Tubby (1912) considered it to be congenital, Whitman (1927) described it as "not infrequently seen in infancy," and it has been described by Jahss (1936), Zadek (1942), Rose (1946), Sprecher (1949), Fahey and Bollinger (1954).

Clinical features

Ten young children with trigger thumbs were seen at The West Hill Hospital, Dartford, ranging in age from six months to four years, and of these, two were bilateral and eight were unilateral. A history of trauma was often given by the parents but in this series it was thought that the injury was incidental and had merely drawn attention to an already existing deformity. In one child with both thumbs affected, the deformity was noticed by the mother from birth. In the rest, it was present from six to twelve weeks prior to the parents seeking medical advice.

All the children presented with a flexion deformity of 15 to 50 degrees on the interphalangeal joint of the thumb, and attempts to correct it by force only caused pain. The other constant finding was the presence of a distinct palpable nodule over the volar surface of the neck of the first metacarpal. In none of the children could snapping or triggering be obtained, (Fukase, Fukada and Yamaguchi, 1961).

Pathology

Normally, the tendon sheath of the digit at the level of the metacarpophalangeal joint is slightly

thicker and acts as a pulley. In trigger thumb of adults, this pulley is constricted and thickened and produces enlargement of the tendon on each side. The pathological lesion seems to be different in children, and in five children operated on in the last twelve months, no such undue thickening of the pulley was found. Instead, a large bulbous nodule in the tendon was met with at this level. Distal to this nodule, the pulley appeared to be constricted but this was rather relative to the size of the tendon.

Biopsy of the tendon nodule showed normal tendon tissue infiltrated with lymphocytes and monocytes (Sprecher, 1949), and evidence of colliquative degeneration (Fahey and Bollinger, 1954). This is consistent with a post-traumatic reaction of the tendon.

Treatment

Conservative measures are unlikely to succeed. Passive manipulation of the flexed thumb is painful and the condition returns at a later date. In one boy of five, such manipulation resulted in locking of the thumb in extension and operation was necessary to relieve it. The condition when left untreated results in permanent flexion contracture, and a woman of 45 was seen with such a deformity giving a clear history of the condition existing since early infancy.

Operative treatment is, therefore, advised. Through a small transverse incision, the nodule is exposed and the digital nerves on each side of the tendon are protected. The constricting pulley distal to the nodule is incised and the interphalangeal joint is extended fully. It has been found unnecessary to interfere with the nodule in the tendon. Only the skin is sutured.

Comment on Aetiology

Various theories have been put forward as to the cause of trigger thumb in children. The clinical and operative findings in this series are as follows:—

The thickened nodule in the flexor tendon was found to be of significance in contrast to the adult condition where the lesion is in the tendon sheath. Trauma was not found to be a significant factor and the lesion is probably congenital.

The infant at birth holds the thumb in strong adduction across the palm with the fingers flexed over it and this is also likely to be the intra-uterine position of the thumb. The infant maintains this position for the first few months of life and it is possibly the explanation why the deformity is not noticed by the parents earlier.

The adducted position of the thumb causes acute kinking of the tendon at the level of the metacarpophalangeal joint. The presence of a sheath pulley in this situation may be sufficient to cause injury to the kinked tendon and it is also possible that the presence of a sesamoid bone behind the tendon may aggravate such trauma. Such a lesion produces an inflammatory reaction which results in the thickened nodule, which, when formed and if large enough, will prevent the free passage of the tendon through the pulley in full extension of the interphalangeal joint. If the nodule is small enough to negotiate the pulley with difficulty, snapping may result or manipulative treatment may succeed temporarily.

Once the infant starts using the thumb and tries to extend the interphalangeal joint, the thickened tendon not only prevents this movement but also irritates the pulley and causes further constriction

and thickening of the sheath at this site. It is also possible that the healthy pulley that permitted the passage of the nodule in the beginning may prevent it later after the continuous irritation has produced further constriction. This explains the onset of delayed symptoms.

Conclusion

Trigger thumb in infants rarely presents any triggering or snapping. The commonest finding is the flexion deformity of the interphalangeal joint and a nodule in the tendon. The condition is congenital and the causation is different from that in an adult.

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