

Ankylosis of Temporomandibular Joints

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The problem of ankylosis of temporomandibular joints has attracted surgeons to deal with the joints in different ways, in an attempt to provide and maintain the important function of chewing.

Humphrey in 1856 reported successful treatment of the condition by resecting the condyle. Esmarch in 1860 resected a portion of the ramus of the mandible. The subsequent attempts have been to preserve the joint movements by interposition of various substances in between the two bony surfaces.

These are muscle, fascia, fat-fascia, cartilage and dermal grafts. Besides these autografts, the implants like silastic have been used. Phemister and Miller (1918) emphasised on an early & active post-operative movements.

This is the preliminary report of our attempt to achieve the same. The method is particularly indicated in cases where the ramus of the mandible is one block of bony mass with the temporal and zygomatic bones, and there are no coronoid or condylar processes, (Fig. 1, 2).



Fig. 1 : Lateral view of the ramus of the mandible temporomandibular joint region, as one bony mass. There are no condylar and coronoid processes —



Fig. 2 : Arrows showing the gap osteotomy of the ramus. There is clear acrylic radio-lucent pulley in the bony gap.

Technique

The principle was suggested by McComb from Perth, Western Australia. The approach to the ramus is through the Risdon submandibular incision. The masseter is raised by subperiosteal dissection. A strong upward traction is required to expose the upper portion of the ramus. A horizontal cut is made across the ramus, above the mandibular foramen, by a power drill cutter point. The bone, usually, at this place is about 1 to 2 cm. thick. Circular notches are made in the centre of both the fragments for the acrylic pulley. In more recent cases, the bony ends are bevelled on either side of the pulley, (Fig. 3). The later is fixed to the lower bony fragment

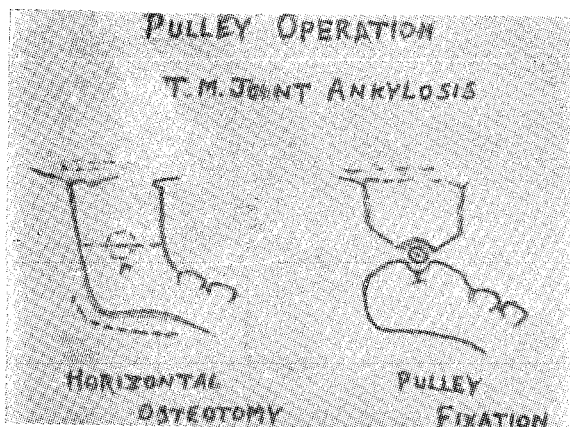


Fig. 3 : Shows the line of osteotomy. Bony ends are bevelled and pulley is fixed to the lower fragment with wire.

This was not done in earlier cases as in fig. 2

by S.S. wire passing through the central axis of the pulley, and the bone. The length of the pulley varies from 1.5 to 2 cm. so that its flanges fit on either side of the bony margin. The masseter muscle is reattached and the wound is closed. If the mouth does

not open, the same procedure is done on the other side.



Fig. 4 : Bilateral pulleys fixed with wires in case No. 5.

At the end, an impression of the bite is taken by the dental team and an acrylic exercisor is constructed. Active exercises are given from the 4th or 5th postoperative day. In a bilateral case the masseter action is weak for first two to three weeks.

The distraction of bony ends by the pulley should be avoided, because this is likely to cause posterior open bite.

Material

Five patients have been operated upon to open the mouth, since 1965. The maximum follow up has been a little over two years (Table 1). The usual causes for the ankylosis were trauma or infection during infancy or childhood. In two cases, bilateral procedure (Fig. 4) had to be carried out to achieve the opening. In the case No. 2, a girl aged 7 years, the incisor opening could not be maintained and the ankylosis recurred. The child was not very co-operative in carrying out the exercises. Both sides,

the pulleys were explored again six months later. Acrylic pulleys were found quite clear as before, and lying inside the Smooth lined cavities. There was dense fibrous tissue around the cavities, which was excised. This time, larger pulleys were used and the wound closed. Patient was on exercises, but the ankylosis recurred again. This led us to exclude the children below 10 years and those who are not likely to cooperate in the post operative period, (Fig. 5—7).

Summary

A technique of osteotomy through the ramus of the mandible has been described in cases where the ramus forms a bony block with the skull bones. Clear acrylic pulley is inserted between the bony ends to produce the false joint. Post operative exercises are stressed upon to maintain the joint function. The maximum follow up at present is two years.

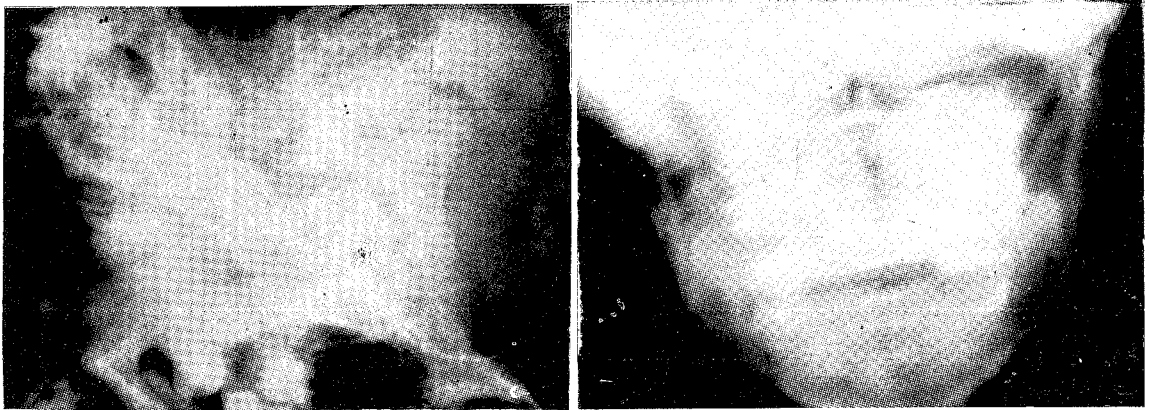


Fig. 5 & 6: Pre-and Post operative radiographs in case No. 3.

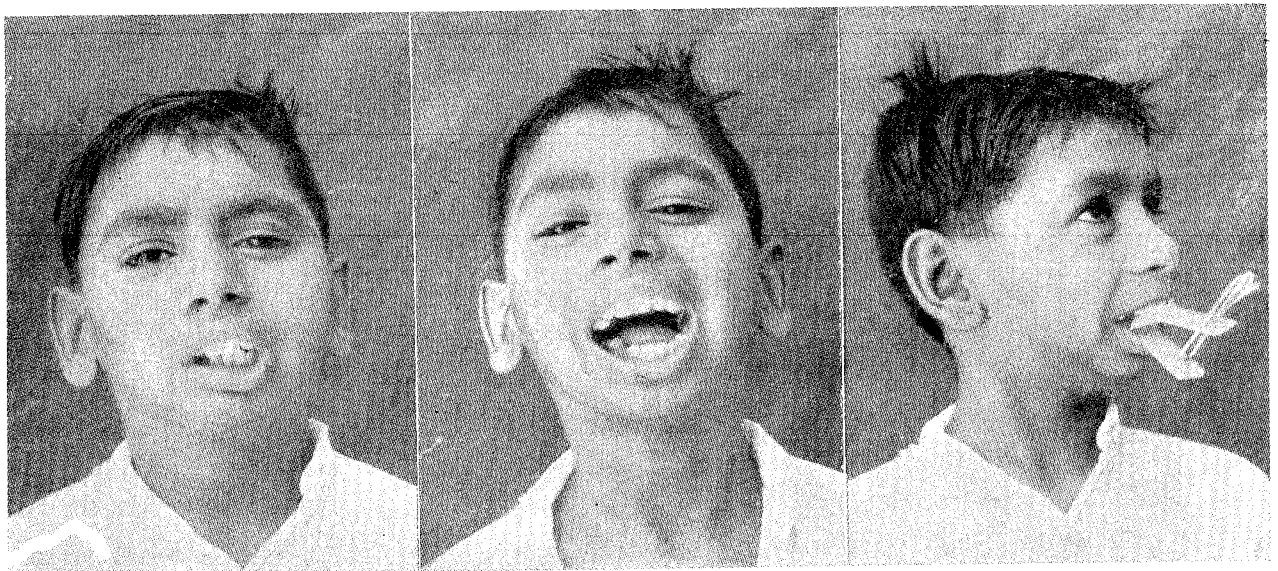


Fig. 7:a,b, c are pre and post operative photographs, showing the mouth opening and the exercisor in the mouth.

Table 1 — **PULLEY OPERATION**

Patient	Age	Duration	Trauma/Infection	Operation	Follow up	Result (Incisor opening)
1. R.K.S.	18 F	15 Yrs	Infection	Unilateral	2 Yrs	2.5 cm.
2. A. J.	7 F	7 Yrs	? Birth Trauma	Bilateral	1 $\frac{3}{4}$ Yrs	Re-Expl. 6 months
3. I.D.	12 F	8 Yrs	Trauma	Unilateral	4/12 Yrs	1.5 cm.
4. BH.	10 F	6 Yrs	Nil	Unilateral	2/12 Yrs	1.5 cm.
5. M.P.	17 M	15 Yrs	Trauma	Bilateral	1 $\frac{1}{2}$ Yrs	1.5 cm.