

274 MEARS (J.E.)

CLOSURE OF THE JAWS AND ITS TREATMENT.

80-

BY

J. EWING MEARS, M.D.,

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, PENNSYLVANIA COLLEGE OF DENTAL SURGERY,  
SURGEON TO ST. MARY'S HOSPITAL.

EXTRACTED FROM THE

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA,

FEBRUARY 2, 1887.

LIBRARY  
SURGEON GENERAL'S OFFICE

JUL.-30-1898

610

PHILADELPHIA:

WM. J. DORNAN, PRINTER.

1887.



**DR. A. E. FOOTE**

**MINERALS AND BOOKS**

MEDICAL, AGRICULTURAL, HORTICULTURAL, EDUCATIONAL, ETC.

1317 ARCH STREET

PHILADELPHIA, PENNA., U. S. A.

PLEASE RETURN THIS SLIP, WHETHER THE ARTICLE IS WANTED OR NOT,  
AND SAVE US TROUBLE AND EXPENSE

Mears J. Ewing.

Closure of The Jaws and  
Its Treatment. 15 pp. 11 figs.  
pap. Phila 1887.

30¢



# CLOSURE OF THE JAWS AND ITS TREATMENT.

BY

J. EWING MEARS, M.D.,

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, PENNSYLVANIA COLLEGE OF DENTAL SURGERY,  
SURGEON TO ST. MARY'S HOSPITAL.

---

EXTRACTED FROM THE  
TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA,  
FEBRUARY 2, 1887.

---

LIBRARY  
SURGEON GENERAL'S OFFICE

JUL.-30-1898

610.

PHILADELPHIA:

WM. J. DORNAN, PRINTER.

1887.



## CLOSURE OF THE JAWS AND ITS TREATMENT.

By

J. EWING MEARS, M.D.,

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, PENNSYLVANIA COLLEGE  
OF DENTAL SURGERY, SURGEON TO ST. MARY'S HOSPITAL.

[Read February 2, 1887.]

---

AT the meeting of the American Surgical Association, June 1, 1883, I read a paper on "Closure of the Jaws and Its Treatment." In this paper, which was published in the first volume of the *Transactions of the Association*, I described the two forms of permanent occlusion of the jaws—one due to the formation of osseous or cicatricial bands between the alveolar processes, and the other dependent upon ankylosis of the temporo-maxillary articulation, either fibrous or osseous in character. I gave also a *résumé* of the methods of operation which had been suggested and practised for the relief of these conditions, reported the almost universal failures of these methods in obtaining successful results, as gathered from the reports of cases, and stated the objections to their employment. That a better understanding may be had of the subject which I present this evening, I give, at this time, this *résumé*.

A *résumé* of the methods of operation which have been suggested for the relief and cure of permanent

closure of the jaws shows that they have been as follows :

*1st.* Division of the cicatricial tissues. Section of the masseter and temporal muscles, as originally suggested by Carnochan, when division of the cicatricial bands is insufficient.

*2d.* Excision, more or less complete, of the cicatricial bands or osseous formations, and the subsequent employment in case of the former, for a long period of time, of wedges and levers to maintain the separation of the jaws. Transplantation of mucous membrane to cover the surface of the wound, as suggested by Dieffenbach, or transplantation of skin, as practised by Jaesche.

*3d.* Division of the cicatricial tissues, and the adaptation of metal shields, not only to prevent recontraction, but to re-establish the sulcus of mucous membrane at the base of the alveolus.

*4th.* Dieffenbach's method of simple division of the ramus of the jaw—and the formation of a false joint *behind* the point of contraction.

*5th.* Esmarch's suggestion that the joint be formed in front of the contraction, and that a segment of bone be removed for this purpose—by external incision.

*6th.* The formation of a false joint *in front* of the contraction by simple division of the bone, made by forceps applied within the mouth—Rizzoli's method.

In closure due to ankylosis of the temporo-maxillary articulation, the methods practised are :

*1st.* Formation of a false joint by exsection of the jaw, by external incision (Carnochan's suggestion), or the division of the ramus from within the mouth, either by saw, forceps, or chisel.

*2d.* Exsection of the condyle with a portion of the

neck, the incision being external, as practised by Prof. S. D. Gross.

The objections stated were as follows :

*1st.* To Incision and Excision. The reformation of the cicatrix and the great pain to which the patient is subjected in the use of wedges, levers, and screws—the difficulties of securing flaps of mucous membrane and skin from adjacent parts and their successful transplantation. The almost universal failures.

*2d.* Division of the Cicatricial Bands and Use of Shields. The pain and inconvenience experienced by the patient in the use of the shields, and difficulty of obtaining the full coöperation of the patient in carrying out the necessary manipulations within the mouth.

*3d.* Section of the Ramus *behind* the Contraction—Dieffenbach's Method. The difficulty of obtaining a permanent false joint after simple section of the bone.

*4th.* Esmarch's Method. The loss of one-half of the jaw for the purposes of mastication, where excision is made in front of the contraction. Its inapplicability when both sides are affected, and the deformity which results.

*5th.* Rizzoli's Method. The difficulty in accomplishing the formation of a false joint by simple division of the bone—the tendency to reunion being much greater than when a segment is removed.

Having given this *résumé* of the different methods of operation and the objections which I believed to exist against the accomplishment of entirely successful results by their employment, I described a method which I had practised in a case of jaw closure due to the formation of osseous and cicatricial bands, involving the left side, the result of a gunshot wound (Fig. 1). The injury was received when the patient was two years of



age, and the operation for her relief was performed on January 26, 1883, eighteen years later. The plan of operation practised, and which differed from those which

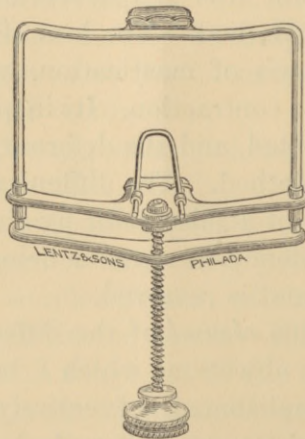
FIG. 1.



Showing closure (from drawing).

had been employed, consisted in the exposure of the temporo-maxillary articulation by an incision along and below the zygomatic arch, the excision of nearly the entire ramus of the jaw with the coronoid and condyloid

FIG. 2.



Author's mouth-gag.

processes, section of the masseter, temporal, and external pterygoid muscles. The osseous plate which had formed between the alveolar processes on the palatal

surface was sawn through, the saw having been introduced between the teeth to accomplish this purpose. The jaws were now separated to the extent of an inch. The subsequent treatment consisted in the daily use, for a period of four weeks, of the mouth-gag (Fig. 2), during the formation of the artificial articulation, with the result of securing a separation of one and a quarter inches.

About the middle of the last month, January, 1887, four years after the operation, the patient called upon me, and I found the separation of the jaws to be over *one and a quarter inches*, and the movements in every respect normal. The patient is unable to recognize any difference, in motion or in sensation, between the natural joint on the right side and that which was formed upon the left (Fig. 3).

FIG. 3.



Four years after operation (from drawing).

Since the time of this operation I have had six cases of jaw closure under my care, in four of which I have operated by methods somewhat different from that above described. Of the six cases five were examples of occlusion due to bony ankylosis occurring in the temporo-maxillary joint.

In one, the buccal cavities on both sides were entirely obliterated by the formation of masses of dense cica-

tricial tissue which bound the jaws firmly together and permitted the separation of the lips only (Fig. 4). This condition followed an attack of noma, in which the tissues of the cheeks, except the integument, were entirely destroyed by the inflammatory action, the tongue and lower jaw on the right side being likewise involved, causing a loss of a portion of the former and necrosis in the latter. In the report of the case above

FIG. 4.



Showing closure (from photograph).

referred to, made to the Surgical Association, I stated that I had not divided the cicatricial band which existed, but had utilized it as a ligament, and I stated it as my belief at the time that such use could be made of these bands. In this case, however, the cicatricial bands were so extensive, reaching from the ramus of the jaw to the angle of the mouth, and were so unyielding that it became necessary to modify the plan of operation. The condition of necrosis demanded that the mouth should be opened at once, in order that treatment could be adopted. The bands were therefore divided by incision in the mouth, the cavity opened widely, and several

spicula of dead bone were removed. Use was made of the mouth-gag to maintain separation of the jaws. Despite daily use of the instrument, reunion of the bands occurred at the end of six weeks, and almost complete closure was again effected. Division of the cicatricial tissue was a second time performed, and with the same result as in the first operation. At the expiration of two months the cicatricial bands were dissected out *en masse*, leaving the buccal spaces free. Reformation of the tissues followed, and, with their recurrence, closure, not, however, to the full extent.

The difficulties experienced in this case, and the failures which accompanied the methods employed, induced me to make an effort to effect division of the dense tissue by means of a ligature, believing that reunion could thus be partially, if not completely, prevented. In this expectation I was not altogether disappointed.

Having armed a strong-handled needle with a double-twisted, carbolized silk ligature, I passed it from the angle of the mouth backward between the integument and the outer surface of the cicatricial mass, and caused the point to emerge just behind the last molar tooth of the lower jaw. In this manner I surrounded the cicatricial tissue with the ligature, which was tied loosely and moved each day for a week, so as to establish a canal which would not readily close. At the expiration of a week I tightened the ligature slightly, and every third day for the next two weeks made slight torsion, passing a probe meanwhile along the track of the ligature. In this way the dense tissue was slowly divided, union not taking place at the bottom of the wound, and the jaws were separated *three-quarters of an inch*, sufficient for all practical purposes. The patient went to his home

in the country, and four months later returned, when the photograph which is now shown was taken (Fig. 5). At some future time the remaining tissue may be divided by the ligature and separation of the jaws to a greater extent accomplished. The result obtained in this case, an example of occlusion by the formation of most extensive cicatricial bands, induces me to offer the

FIG. 5.



Four months after operation (from photograph).

method of slow division by ligature as possessing advantages over the methods heretofore suggested and employed.

Modifications in the method of depositing the ligature may be required in different cases. When the jaws are firmly locked by broad bands it may be necessary to pass the ligature from behind, introducing the needle externally just behind the posterior border of the cicatricial band, and carrying it forward to the angle of the mouth; then reintroducing the needle, it may be carried along the inner surface of the mass, and brought out at the wound made on the external surface. It may be deemed expedient in certain cases to divide the bands in

portions rather than *en masse*. Care should always be taken to avoid implication of the duct of Steno.

FIG. 6.



Showing closure (from photograph).

Of the cases of synostosis of the lower jaw, two were due to traumatism. In one there were evidences of

FIG. 7.



Two years and a half after operation (from photograph).

fracture of the neck of the condyle of the jaw caused by a fall upon the chin (Figs. 6 and 7); in the other, a

kick by a horse had fractured the body and ramus of the jaw, and inflammation had attacked the articulation

FIG. 8.



Showing closure (from photograph).

(Figs. 8 and 9). The articulation upon the right side was affected in both of these cases; the injuries were received when the patients were ten and eleven years of

FIG. 9.



Six months after operation (from photograph).

age respectively, and the operations for their relief were performed fourteen and seventeen years later, securing

in each case a separation of the jaws to the extent of *one and a quarter inches*. In the one injured by a fall upon the chin there was marked recession of the lower jaw and an absence of full development.

FIG. 10.



Showing closure (from photograph).

In the third case, a boy ten years of age, the bony ankylosis upon the left side had followed necrosis of the

FIG. 11.



Ten months after operation (from photograph).

body and ramus consequent upon an attack of scarlet fever. Closure of the jaws had existed for four years



(Figs. 10 and 11). In this case *one and a half inches* separation was permanently secured.

In all of these I modified the operation employed in my first case, by effecting excision of the upper portion of the ramus, the coronoid, and the condyloid processes through the mouth, avoiding in this way an external cicatrix.

The method of operation is as follows: A straight, sharp-pointed bistoury is introduced beneath the masseter muscle on a level with the last molar tooth of the lower jaw. Into the wound thus made the blade of an Adams saw is passed, and the ramus sawn through. The periosteum, with the overlying masseter muscle, is raised by the periosteal elevator, and the wound thus enlarged. The insertion of the temporal muscle is now divided by a probe-pointed bistoury. The tissues on the inner surface are separated by the elevator, the bone seized by the lion-jawed forceps, and an effort made to dislodge it by forcibly twisting it outward. If it yields at the neck of the condyle, the process is afterward chiselled out. If sufficient space is acquired without removal of the firmly ankylosed process, it is permitted to remain, the object being to provide ample space for the formation of an artificial joint. Section of the masseter muscle is made if its tense condition demands it. Hemorrhage which arises from the division of muscular arterial branches, and possibly of the inferior dental artery, is controlled by pressure effected by packing the wound-cavity with sponges. Wounding of the internal maxillary artery is to be avoided by careful use of the instrument in close contact with the bone in the upper and inner portions.

Section of the inferior dental nerve is liable to occur,

producing anæsthesia in the teeth, and regions of the chin supplied by its mental branch. In one case in which this has occurred I have observed a gradual restoration of the function. In another, anæsthesia still exists, although nearly a year has elapsed since the operation. The wound-cavity is packed with iodoform gauze, seven and a half per cent., and renewed every third day. Manipulation with the mouth-gag is instituted at the expiration of a week, and maintained for a varying period—from six to eight weeks or longer, according to the requirements of the case. This manipulation gives no pain in the newly formed joint. In two instances the renewal of motion has caused pain in the sound articulation. In one of the patients exhibited this evening an attack of subacute inflammation occurred in the sound joint which required the application of three blisters to remove. The use of the ordinary chewing-gum, I have found, assists materially in maintaining the movements of the jaw during the formation of the false articulation. In one of the cases the restoration of the motions of the jaw stimulated the hair follicles and gave rise to a marked growth of the beard.



