full consideration of the shock to be entailed by the cutting and suppuration, and the ability of the patient to endure such shock (see page 514). In removing a cicatrix, it is to be recognized that not only may a prolonged dissection be necessitated, but the cutting is not at all unlikely to be of the most hazardous nature, requiring on the part of the surgeon not only an accurate knowledge of the anatomy of the parts involved, but a patience and a manipulative skill which are by no means a common possession.

A secondary danger associated with these operations lies in the supervention of erysipelas, a contingency to be guarded against by that preliminary attention which has taken into consideration every functional irregularity which can have a tendency to lower the resistive force of the individual locally or at large.*

A flap is always to be at least from a quarter to a third larger than the cicatrix to be replaced; such increased size will be found necessary to counterbalance shrinkage.

A flap is always to be taken from the nearest healthy neighboring part. It is to have the widest pedicle the circumstances of the case will permit, and is not to be laid in its new situation until all hemorrhage has been fully suppressed and both flap and base are covered with a film of plasm.

In fixing a flap, unnecessary stitches are to be avoided, while compression of the most gentle nature is to be used in holding the parts in apposition.

No dressing except of the simplest character is to be employed after an operation; the surgeon is to take it for granted that no complication will arise and that the union is to be immediate and full: should, however, such results not accrue, then indications are to be met as they arise.

Concerning the wound left by the transfer of the flap, this is best treated in the endeavor to close it by the overdrawing of neighboring parts; with large surfaces, however, where the practice may not avail, the process of skin-grafting is had recourse to; this, while not so reliable as is to be desired, serves at times a satisfactory end. For futher illustrations in plastic surgery see chapter on Epithelioma.

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* Erysipelas would seem to be a parasitic disease; the fungi finding habitation in a part incapable of self-defence. Repetition of the combination of a medicament always used by the author is made:

℞.—Tincturæ ferri chloridi, ℥j;
Tincturæ cinchonæ, ℥ij;
Quiniæ sulphatis, ℥j.

Sig.—Apply hourly until blush and tension disappear. Decrease or increase tinctura cinchonæ according to delicacy of skin.

CHAPTER XLVIII.

VASCULAR SYSTEM OF EXTERNAL AND DEEP FACIAL REGIONS.

LIGATION OF ARTERIES.

The arteries of the face, external and deep, arise out of the external carotid. The external carotid is one of the two terminal divisions of the common carotid. A line upon the neck, laid from the sterno-clavicular articulation to the mastoid process of the temporal bone, marks the position of the common vessel in the length of its course from emergence above the clavicle to termination opposite hyoid bone. (Refer to Fig. 23.) A line drawn from a point of meeting with the first, opposite hyoid bone, to angle of lower jaw, locates the situation of external carotid. (Refer to same Fig.) A line starting from the notch upon the face of lower jaw anterior to masseter muscle, being carried to internal canthus of eye of the same side, distinguishes the course of facial artery. (Refer to same Fig.)

The external carotid artery breaks up in the substance of the parotid gland into the internal maxillary, the temporal, and the auricular. (Fig. 22.) The first passes the head of the jaw and supplies all the deep parts of the face. The second has its pulsations felt just in front of the ear, it continues upward supplying the temporal region and side of forehead. The third runs back of the ear, assisting to vascularize the posterior auricular locality.

Associated with the surgical signification of the face is the lingual artery; this is the second branch of the external carotid. It suppplies the tongue, and is the not infrequent seat of ligation.

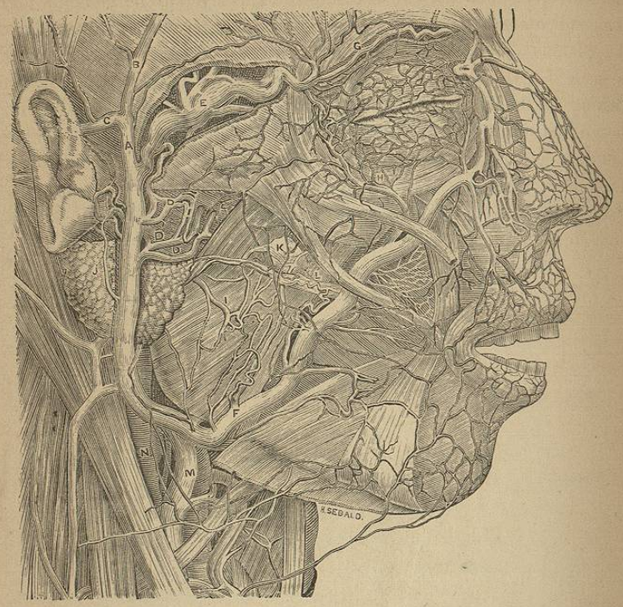
Arterial blood having passed through the capillary system is returned to the common circulation by office of the veins. A dissection of the facial venous system, one of the most perfect the author has ever seen, is here introduced as a study. (Fig. 495.)

Arrestation of Hemorrhage.—Ligation being found necessary for the arrestation of hemorrhage, the vessel indicated for operation is that one most directly associated with the lesion.

1. Ligation of Facial Artery.—Feeling for the anterior border of the masseter muscle, the finger is allowed to drop until resting upon the notch occupied by the artery in its passage over the jaw. Position discovered, a pencil-mark, half an inch in length, is made to designate the direction of the vessel. An incision, one inch in length, is cut oblique to this line. The artery is reached by incising skin, the subcutaneous and adipose tissue, platysma myoid

muscle and deep fascia. Along the outer border of the facial runs its associate vein, which is not to be included in the ligature.

FIG. 495.—VIEW OF THE REGION OF THE TEMPLE, ETC., DESIGNED ESPECIALLY TO SHOW THE TEMPORO-MAXILLARY VEIN AND ITS TRIBUTARIES. (*After Allen.*)



A, temporal vein receiving the anterior and posterior temporals B, C; D, D, the internal maxillary veins, emptying into the temporal to form the temporo-maxillary vein; E, the middle temporal vein (slightly enlarged), to display which the deep temporal fascia over it has been removed; F, the facial vein; G, the supraorbital branch, uniting with the middle temporal vein; H, the inferior palpebral vein, uniting with the same; I, the masseteric vein; J, the parotid vein; K, the socia parotidis; L, the parotid duct; M, the external jugular vein; N, the temporal vein.

2. LIGATION OF TEMPORAL ARTERY.—The seat of selection for ligation of the temporal is immediately above the zygoma and one-quarter of an inch in front of the cartilage of the ear. The vessel lies quite superficial, being covered alone by the integuments. Its pulsations are to be felt, and constitute a reliable guide in the operation. A feature of obstruction is met with in the resisting character of a connective tissue which ties the vessel closely to its bed; this tissue is to be torn by means of a director. Not infrequently one or more lymphatic glands are found in the line of incision; these are to be pushed aside. On the ear side of the artery runs its vein, while both anteriorly and posteriorly are seen nerves (branches of the facial and inferior maxillary) all of which are to be carefully excluded in passage of the thread.

3. LIGATION OF OCCIPITAL ARTERY.—The occipital is a vessel of considerable import coming off from the external carotid just opposite the facial. (See Fig. 22.) Ligated in the scalp, which is the seat of selection, an incision two inches in length, which commences at the mastoid process, is carried outwardly in the direction of the occipital protuberance. The operation is more involved than the two preceding. The layers to be gone through are skin, subcutaneous tissue, some fibres of the sterno-cleido-mastoid muscle, the splenius and complexus. Reaching thus the locality of the artery, search is made for the vessel by means of a finger introduced into the wound. Casting of the ligature implies the avoidance of accompanying vein, and, most importantly, of the large mastoid vessels which in this neighborhood join the occipital vein, forming communication with the lateral sinuses of the dura mater.

Fig. 496 shows the various lines of incision described together with ligatures in position.

FIG. 496.

Lingual Artery.—Wounds and diseases of the tongue make necessary, occasionally, the ligation of the lingualis. To do this operation requires much skill and thorough anatomical knowledge of the parts. The seat of selection is where the vessel runs beneath the hyo-glossus, immediately above the greater cornua of the hyoid bone. Feeling for this extension, the cutting is commenced by an incision running inward from the anterior border of the sterno-cleido-mastoideus parallel with, and just above, the horn. The tissues to be gone through include the skin, platysma myoid muscle, superficial fascia, deep fascia. Arrived at this locality the hypo-glossal nerve is found directly in the line of the cut, overlying the hyo-glossus muscle, the lingual

vein being in immediate relation. Supporting these vessels and covering the artery is the muscle named. This is to be incised; a director being used.

Fig. 497 is introduced as a study. The author has repeated the dissection a great number of times. The block is more than good.

A hemorrhage uncontrolled by any one of the ligations described, a succeeding recourse is to the external carotid; this failing, in turn, the primitive, or common, carotid is to be tied.

4. Ligation of External Carotid Artery.—The patient being placed upon his back, with the head extended, an incision is made obliquely over

Fig. 497.

Relations of the Lingual Artery. H, hyoid bone; *h*, its great horn; M, the body of the lower jaw; *M'*, its angle; *sh*, *oh*, *th*, insertions, into the body and horn of the hyoid bone, of the sterno-hyoid, omo-hyoid, and thyro-hyoid muscles; *ph*, the inferior constrictor muscle of the pharynx; *sm*, the submaxillary gland drawn over the jaw, with (*f*) the facial artery and vein; *je*, the external jugular drawn aside, along with the sterno-cleido muscle; *d*, the digastric muscle perforating the stylo-hyoid, and looped down to the great horn of the hyoid bone by its fibrous pulley, *d'*; *hyp*, hypoglossal nerve running alongside the lingual vein, and disappearing under (*mh*) the mylo-hyoid muscle; *l*, the lingual artery passing beneath (*hy*) the hyoglossus muscle; *t*, the superior thyroid artery; *f*, the facial artery, behind which lies the external carotid; *ci*, the internal carotid artery; *ji*, the internal jugular vein, into which are seen emptying the facial, the lingual, and the superior thyroid tributaries. The white stars mark the point where the artery is cut from, as described in the text.

the line of the vessel as located; this incision to be one and one-half inches in length. The overlying tissues consist of skin, platysma myoides, superficial fascia, deep fascia. Section of this last exposes more or less connective tissue in which the sheathed vessel lies; the facial and lingual veins, and commonly one or more lymphatic glands, being in close association. The artery is crossed by the hypoglossal nerve and by the digastric and stylo-

hyoid muscles. Close to its outer border lie the internal carotid and deep jugular vein. The situation of the part being quite deep, much dexterity is required in manipulating about it. The ligature is to be passed between the two carotids; that is, from without inward.

5. Ligation of Primitive Carotid Artery. — The study of the topographical anatomy of the neck shows it first as an oblong square, which is divided primarily into an anterior and posterior triangle by reason of the oblique crossing of the sterno-cleido-mastoid muscle. A second muscle, passing obliquely in a reverse direction, the omo-hyoid, subdivides the two triangles into four, these being known as the anterior inferior and superior, and the posterior inferior and superior cervical triangles. The primitive carotid is ligated in either of the anterior triangles; in the superior preferably.

In Superior Triangle.—The patient in position as described in connection with the external carotid, an incision from one to two inches in length is made upon the line described. Overlying tissues are skin, platysma myoides, superficial fascia, deep fascia, sheath of vessel. Upon the sheath is the descendens noni nerve; within it are the artery, the pneumogastric nerve and deep jugular vein.

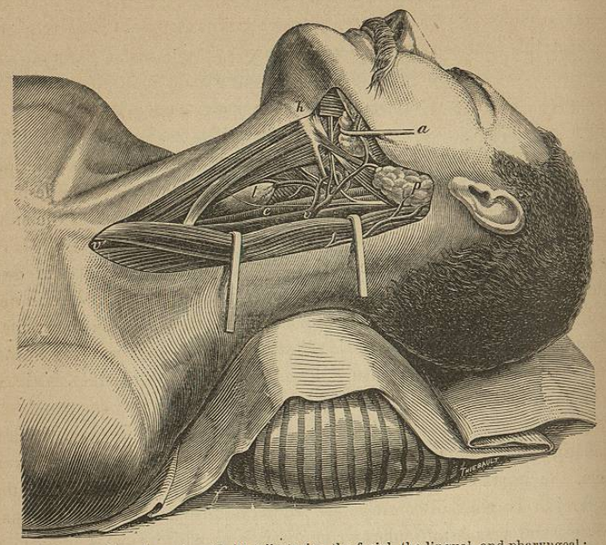
In Inferior Triangle.—Position of patient is the same. The line of incision approaches the trachea along with the anterior border of sterno-cleido muscle. Overlying structures are skin, platysma myoides, superficial fascia, deep fascia. In place of coming here, as in the previous dissection, upon the sheath of the vessel, muscular structure is met with: this structure is, on the outside, the sterno-cleido-mastoideus; on the inside, the sterno-hyoid and thyroid muscles. To get at the artery requires separation of these muscles at the interspace, retractors being used to hold them out of the way. Exposure of the sheath reveals an anatomy as before described. The passage of the needle in both operations is to be from behind forward, great care being taken that neither nerve nor vein be included in the ligature. Fig. 498 is a study from dissection. It shows most fully the relational anatomy of external carotid artery and that of the superior cervical triangle as reference is had to seat of election for ligating primitive carotid. The anterior inferior shows upper boundary of that triangle as made by the crossing of the omo-hyoid muscle, also outer and inner boundaries as made by sterno-cleido and sterno-hyoid and thyroid muscles. At the bottom of the space exposed are the artery, vein, and nerve enveloped in the common sheath. It is understood, of course, that the two muscles named have been removed. Fig. 23, as well as Fig. 498, shows them in place and surgical relation.

Fig. 498 enlarges the dissection shown in Fig. 23. Combination of the two affords an anatomy which furnishes a sufficient guide to the performance of the ligation.

Concluding the subject, it is to be added that a comprehension of the surgical anatomy of the neck region is best secured by first viewing the

part as a square, the boundaries of which are the mesial line in front, the trapezius muscle behind, the base of the jaw above, and the line of the

FIG. 498.



V, internal jugular vein with its tributaries, the facial, the lingual, and pharyngeal; *p*, parotid gland; *h*, os hyoides to which is attached the stylo-hyoid muscle, through which is seen running the tendon of the digastric, under which passes the hypoglossal nerve after crossing the external carotid; *a*, hook raising the submaxillary gland in order to expose contiguous parts.

clavicle below. This square is divided into two great triangles, known respectively as the anterior and posterior cervical, the separation being the sterno-cleido-mastoid muscle. These triangles are subdivided by the passage of another muscle, the omo-hyoid, into four, namely, anterior superior and inferior, and posterior superior and inferior cervical triangles. Desiring to inform himself as to a special operation, or as to detail, the practitioner isolates the particular triangle and makes his study, or diagrams, without reference to any other part.

CHAPTER XLIX.

THE ANTRUM OF HIGHMORE AND ITS DISEASES.

MANY years spent in a practice which should have afforded every opportunity for observation, as well as a scope of view which necessarily offers to one who is himself a hospital surgeon and a frequent visitor at hospitals, combine to impress the writer with the truthfulness and propriety of a conclusion, that the immediate diseases of the antrum are, for the most part, simple in character, easy of diagnosis, and, as a rule, not at all difficult of treatment. Indeed, for the purpose of general study, one would not be entirely without justification in asserting that there are but two sources of trouble to be found in this cavity: the first, and prominent, being lesions secondary to the diseases of the teeth; the second, the lesions common to mucous membranes, wherever situated. Certain it is that the great majority emanate from the first of these directions; while the atonic conditions, represented by the dropsies, the puruloid secretions, the mucous engorgements, and the ulcerations, are in no wise different from ordinary mucoid affections, except as modifications are made by situation; the last being conclusively proven by the fact that what is the cure of the one is the cure of the other.

While accepting, however, that in these two directions lie the chief sources of trouble, it is not by any means to be understood that the subject is unworthy investigation outside of such considerations; on the contrary, there is found recorded more than one description of diseases of the cavity, which, to the author, at least, are as anomalous on principle as they are in description, and which he can only explain to himself on the ungenerous supposition that the authors have drawn on their descriptive powers, or else that the antrum has some strange anomalies.

Again, as a class coming between these uncommon and the common affections, it follows, not at all indirectly, that there exist sequelæ of certain of the exanthemata which have a special and peculiar affinity for this cavity; while, in syphilis, it may be the case that the very first event in the secondary train exhibits itself in a disturbance of the sinus. That this latter, however, is rare, observation certifies. Indeed, syphilitic troubles of the antrum are so infrequent even in the tertiary stage of that affection, that experience will lead to the inference that the cavity never takes on the disease unless when, from continuity of structure, it has the trouble absolutely forced on it, this either from its relationship with the hard palate in the oral direction, or with the turbinated bones in a nasal; for, while the practitioner will surely hear