

sels and save all the blood I could, and peeled up the tissues, hugging the bone, taking along the periosteum wherever there was any. I thus freed the external border near the inferior angle and inner border. Coming now to the superior border and the supra-spinous fossa, I peeled out the tissues in the same way. I then made an incision over the clavicle as far as the necrosed tissues extended, and dissected them away carefully, so as to avoid wounding any important vessels. I now turned up the inner border and enucleated the scapula. I thus worked from below upwards until I reached the coracoid process; I then sawed off about one and three-fourths inches of the outer end of clavicle, and removed it with the scapula and humerus.

During the operation four vessels were ligated, and some eight or ten smaller ones twisted. When I had removed the shoulder blade, etc., I found I had not enough tegument to cover the enormous wound. There not being much time for reflection, as my patient looked more dead than alive, I rapidly dissected up the skin and superficial fascia sufficiently to slide them together to form an integumentary covering. The wound was washed out with carbolized water, and after closing with silk stitches was dressed with lint and a thick layer of cotton-wool.

The wound healed quickly, the patient was up in a week, and made an excellent and complete recovery.

From the periosteum that was peeled from the scapula at its lower angle, superior angle, and inner border, considerable bone formation was reproduced within eighteen months.

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#### ARTICLE IX.

##### CASE OF EXCISION OF THE ENTIRE SCAPULA FOR CANCEROUS DISEASE.

RECOVERY OF THE PATIENT WITH A USEFUL ARM. By GEORGE A. PETERS, M.D., Attending Surgeon New York Hospital, New York.

CHARLES SMITH, England, æt. 42, cabinet-maker, was admitted into the New York Hospital January 3d, 1878, with the following history: Eighteen months ago he noticed slight stiffness in the movements of the right arm, accompanied by a moderate swelling of the corresponding shoulder. It caused him no pain, only a slight discomfort on certain motions of the shoulder-joint, or when he lay upon the affected side. These symptoms remained about the same until three months before admission, when he experienced more difficulty in using the arm, and was not able to work at his trade with his usual facility. At this time he also began to have severe pain, lasting for a few minutes if the shoulder were struck or pressed upon. Within the past three months the tumour has commenced to grow rapidly. General health good; no family history pointing towards cancer. Is not aware that he has ever overstrained or injured the arm. Examination on admission showed a tumour of the right shoulder situated upon and above the spine of the scapula. The tumour was not distinctly circumscribed, and had a somewhat elastic feel; was not movable. There were two points of tenderness, one upon the outer and the other upon the inner portion of the tumour; four and a half inches apart. The measure-

ments were as follows: On diseased side, vertical circumference around the axilla and over the highest point of the tumour was twenty inches. Measurement upon the sound side was seventeen inches. The skin over the surface of the tumour was congested, and the surface temperature was increased. Motion of the shoulder-joint not much impeded, though on circumduction the entire shoulder is raised. Aspirator needle, number 4, was inserted, drawing off only blood.

In consultation with my colleagues at the hospital, it was determined that the tumour was probably malignant, involving a portion of the scapula. It was also determined that the entire scapula should be removed rather than to leave any portion of it behind. The operation was performed January 11th, 1878. Patient was etherized. Carbolic spray was used, and all the details of Lister's antiseptic method were faithfully carried out. A horizontal incision through the skin was made over the centre of the tumour, along the spine of the scapula, from the acromion process to its superior angle. Some fibres of the trapezius and deltoid muscles were divided upon a director, thus exposing the surface of the tumour, which was found to involve the spine and supra-spinous fossa. A vertical incision was now carried from the middle of the transverse cut down to the inferior angle of scapula. The skin flaps were rapidly dissected up and reflected to either side. The posterior border of the scapula was then freed by dividing the trapezius, rhomboidei, and the levator anguli scapulae muscles, at their attachments to the bone, which was then lifted up and tilted forward. The subscapularis muscle was stripped from the under surface of the scapula by a few rapid sweeps of the knife, and allowed to drop down on the floor of the cavity. The anterior border of the scapula was now freed from its muscular attachments. The shoulder-joint was opened from behind and above, and completely disarticulated. In endeavouring to separate the acromion process at its articulation with the clavicle, it was found so soft from cancerous infiltration that the knife went directly through the bone. The distal piece, three-quarters of an inch in length, was subsequently removed. There was difficulty in reaching the coracoid process from the outside, so the almost detached scapula was forcibly raised and turned upon itself, when a few strokes of the knife released it from the ligament and muscle which bound it down.

Carbolized catgut ligatures were applied to the supra scapular, the posterior scapular, and the dorsalis scapular arteries. The subscapular artery was not divided. Several small bleeding points were secured in the same manner. Four drainage tubes were inserted; the edges of the wound were brought together and secured with carbolized catgut sutures, and the cavity injected with a solution of carbolic acid, one to thirty. Lister's dressing was applied, the arm carried to the side and crowded well up towards the acromial end of the clavicle. Forearm flexed and supported in a sling.

An hour or so after the operation, blood was found oozing freely through the dressings, which were loosened under the carbolic spray, and the sutures removed. The source of hemorrhage was found to be the supra-scapular artery, from which the ligature had slipped. The vessel was secured, the wound closed, and the dressings reapplied. Patient rallied well from the operation.

*January 12.* Twenty-four hours after the operation the dressings were removed. There was considerable sero-sanguineous discharge. A. M. Pulse 130, temp. 101. P. M. Pulse 134, temp. 101.6.

*13th.* Again dressed. Discharge no longer sanguineous. No inflamma-

tory redness. A. M. Pulse 130, temp. 99. P. M. Pulse 132, temp. 101.6.

14th. Dressings again changed. A. M. Pulse 130, temp. 101.2. P. M. Pulse 126, temp. 100.6.

16th. Dressings changed. Discharge very moderate. No inflammatory redness. Sutures were all absorbed, and edges of wound consequently gaped somewhat.

17th. Dressings again changed. A. M. Pulse 114, temp. 100.4. P. M. Pulse 112, temp. 102.4.

This was the highest point of temperature reached during the progress of the case. The discharge from the wound, which was at no time very great, gradually diminished. Owing to the early melting away of the gut sutures, there was primary union only in a portion of the horizontal incision. The flaps were kept in position as well as possible by compresses and bandages, and the remainder of the cure was accomplished by granulation. The Lister dressings were continued until the 14th of February, when simple open dressings were applied to the small ulcer which remained. Up to February 4th the head of the humerus could be seen deep down in the superior angle of the wound, after which time it rapidly disappeared from view as the sinus leading to it filled up with granulations.

March 21. Patient was discharged cured. He was able to dress and undress himself somewhat awkwardly; to carry the right hand to the mouth, also behind the back, and could elevate the arm from the side to a considerable degree. The accompanying wood-cut will give a good idea of the comparatively slight deformity which remains after so extensive an excision.



Although on the whole well pleased with the Lister dressings, I found great difficulty, owing to their umbrous thickness, in closely adapting the flaps during the process of healing. In a similar case I should use either carbolized silk, or even the silver wire suture, in preference to catgut.

After removal, the tumour was found to involve at least seven-eighths of the spine of the scapula; from and including the acromion process to the smooth triangular surface over which the trapezius

muscle glides. The supra-spinous fossa was slightly involved; the infra-spinous fossa was not invaded.

From a microscopic examination of slices from the tumour, it appeared to be a medullary carcinoma, originating probably in the spongy tissue of

the scapula, and undergoing rapid colloid degeneration. This diagnosis was verified by Dr. W. F. Bull and Dr. G. L. Peabody, both of whom examined the tumour.

It is not my intention to write a history of the operations involving a removal of the scapula, in part or entire, but simply to put this case on record as a contribution to the annals of conservative surgery. In the *American Journal of Medical Sciences* for October, 1868, may be found a carefully prepared paper by Dr. Stephen Rogers, of New York, in which he gives the histories of fifty-six operations, involving the loss of more or less of the scapula. Up to that time, and including Dr. Rogers's case, there had been "known to the history of surgery but nine cases of exsection of the entire scapula, with preservation of the arm." The records of whatever operations of this kind may have been done since the publication of Dr. Rogers's paper, are scattered through the pages of medical journals, and have not, in so far as I know, been tabulated.

In conclusion, I would state that I last saw my patient April 21st, 1878, at which time there appeared to be no signs of a return of the disease about the shoulder. There was also an increase in the power and extent of motion.

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#### ARTICLE X.

SPHYGMOGRAPHIC EXPERIMENTS UPON A HUMAN BRAIN, EXPOSED BY AN OPENING IN THE CRANIUM. BY MARY PUTNAM JACOBI, M.D., OF NEW YORK.

JOSIE NOLAN, aged ten, a very healthy Irish boy, had, eighteen months previous to observation, fallen and fractured his skull in the right fronto-parietal region. According to the mother's account, he remained insensible for two hours; but recovered consciousness about two hours after the fragments of broken bone had been removed by the trepan. The mother insists that from that time the wound healed rapidly, and that the child presented no morbid symptoms, not even fever. The history is evidently imperfect. At present there is an opening in the cranial bones,  $2\frac{1}{2}$  inches in the long diameter,  $1\frac{1}{2}$  inches transversely. The opening is situated in the right fronto-parietal regions, about 2 inches distant from the sagittal suture, towards which the long diameter is inclined at an acute angle. The opening is covered by a membrane, much thicker at the sides near the bones than in the middle. It is to be presumed that the central portion consists exclusively of dura mater, which, near the bony margin, is thickened by the addition of the remains of periosteum. The centre of this membranous covering is habitually somewhat depressed below the level of the cranial bones, but rises and falls in regular pulsations synchronous with those of the radial artery. Ordinarily, the effect of respiration is only distinctly seen in the sphygmographic trace; but, on forced inspiration, the membranes are clearly seen to descend still further below the level of the bones, and on forced expiration to bulge above it.