suture for this work. The extra large strands should be used and preferably those that have been dyed. They should be well softened in water before use.

METHOD OF INTRODUCTION

The vaginal sutures are passed and tied in the usual manner. In the perineum a figure-of-eight suture is used, the first bite of which catches up the levator ani muscles, and the second bite the transverse perineus muscles and skin. Care should be taken in tying these sutures not to bring them too tightly together, or they will cut deeply into the tissues and be difficult to remove. The tissues included within their grasp are to be just snugly approximated—no more.

The ends are left long and all sutures are removed on the tenth day.

ADVANTAGES

1. High percentage of primary union.
2. Perfect approximation with the obliteration of all "dead" space.
3. Fewer sutures with a consequent minimization of interference with nutrition to the tissues.
4. No buried sutures of uncertain strength and questionable sterility, with a low power of resistance to infection and an uncertain period of absorbability, but removable sutures of unquestionable strength, non-absorbable, non-infectible and absolutely sterilizable.

163 East Seventy-First Street.

THE CONGENITAL ABSENCE OF RIBS

REPORT OF A CASE WITH COMPLETE ABSENCE OF THE LEFT SEVENTH AND EIGHTH RIBS*

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The congenital absence of ribs seems to be a rare condition. Supernumerary ribs, especially in the cervical region and less frequently in the lumbar region, are more often seen. Bicipital ribs are occasionally found and usually occur at the first rib.

The congenital arrest in the development of the ribs is more frequent than the arrest of formation or the complete absence of the ribs. The arrest of development is generally manifested at the costal cartilages and the anterior parts of the ribs. It does not occur at any constant level. The defect is generally unilateral, and the first rib is usually unaffected.

As a rule defects of the ribs do not occur alone. There is usually some corresponding failure of development in the vertebral column. The scapula, the muscles of the thoracic wall, and the pleura are also frequently involved. Scoliosis is often present. These patients are generally born with a straight spinal column, but later it becomes bent by muscular action, early in life or at the time when the patient begins to walk. Usually some axial rotation develops in the vertebral column, as well as compensatory curves in the lumbar and cervical regions. Pulmonary hernia may be present.

After a careful search of the literature I am able to mention nine cases showing the complete absence of one or more ribs. The titles of many articles are misleading. They imply that there is a complete absence, when only a defect of a rib is present. Few of these cases were subjected to an x-ray or post-mortem examination,

so it is possible that non-palpable rudiments of ribs may have been present in some of them.

Packard¹ reports a case of a woman aged 39, with eleven ribs on each side. The post-mortem examination by Dr. S. W. Mitchell showed that the left fourth rib was broadened anteriorly and was united to the sternum by a broad cartilage, which was perforated by a round hole so as to indicate its normal double state. On the right side the fourth rib was broadened at the anterior end.

Gripat² describes an acephalic monster with nine ribs on the right side and seven on the left. On the right side the first rib was attached to the middle of the second rib by a ligament. The second and third ribs were united behind at the vertebral column, but were separated in front and attached to the sternum. The fourth and fifth ribs were formed in the same manner as the second and third. The sixth, seventh, eighth and ninth ribs were free anteriorly, but articulated normally with the vertebral column posteriorly. On the left side the first, second and third ribs were united posteriorly, and this common osseous structure was traversed by holes for the nerves. The fourth rib was twice the width of any of the others. The fifth, sixth and seventh ribs were separated and had no anterior attachments.

Gage³ mentions a girl aged 17, with five ribs absent on the left side. The first, second, third, fourth and fifth left ribs were normal. The sixth rib was represented anteriorly by its costal cartilage which joined the fifth rib. No trace could be found of the left seventh, eighth, ninth and tenth ribs. The eleventh and twelfth ribs were normal. There were twelve dorsal vertebrae. There was no curvature of the spinal column at birth; but a scoliosis in the middorsal region, with the convexity toward the normal right side, developed about the fifth year. There was a compensatory curve in the lumbar region. The angles of the ribs were prominent on the right side, due to a marked horizontal rotation of the vertebral column. There were no other such cases in the family.

Gage³ also mentions a case which was reported by Willet and Walsham to the Royal Medical and Chirurgical Society (in 1880). There were only five ribs on the right side and four on the left, and four and one-half dorsal vertebrae were absent. There was a lateral curvature of the spine with the convexity to the left, which they believed to be due to the absence of the right half of the third dorsal vertebra.

Sabrazès⁴ reports the case of a girl aged 2, in whom the sixth and part of the seventh ribs were absent. The left first, second, third, fourth and fifth ribs were normal. The sixth rib was absent. The seventh rib was represented by a broad cartilage anteriorly. The eighth rib was composed of two bony rods side by side, which were fused together posteriorly. The cartilage joining these rods to the sternum anteriorly showed traces of being divided. The ninth rib was bound in front to the eighth by a thick cartilage. The tenth, eleventh and twelfth ribs were floating.

Murray⁵ describes a patient aged 5, with complete absence of the eighth, ninth and tenth ribs on the left side. The left eleventh rib was smaller than the corresponding right rib, while the left twelfth rib was longer and larger than the right twelfth rib. The defect in

1. Packard: *Proc. Path. Soc., Philadelphia*, 1867, II, 121.
2. Gripat: *Bull. Soc. anat. de Paris*, 1872.
3. Gage: *New York Med. Jour.*, 1880, I, 650.
4. Sabrazès: *Rev. de méd.*, 1894.
5. Murray: *Tr. Clin. Soc. London*, 1896, xxix, 252.

* Read before the St. Louis Medical Society, Oct. 19, 1912.
* From the Department of Anatomy, St. Louis University.

the thoracic wall between the seventh and eleventh ribs was 6.25 cm. wide in the axillary line.

Freund⁶ describes an infant of 8 weeks, in which the right fourth, fifth and sixth ribs were found completely absent on palpation. There was a deep groove at the level of the left mamma, 4 cm. wide, extending from the sternum to the vertebral column.

Labbé⁷ describes a full-term infant which died at birth. An autopsy showed twelve ribs on the right side. On the left side there were only eleven ribs. The fifth and sixth ribs were welded together, as were also the seventh and eighth. The infant also had an umbilical hernia, a congenital scoliosis, a spina bifida, bilateral congenital dislocation of the hips and club-feet, and there was an absence of the genital organs and bladder.

Skilgram showing congenital absence of ribs in an infant.

Gladstone⁸ mentions a case in which the twelfth ribs were absent on both sides. The patient had seven cervical, eleven thoracic and six lumbar vertebrae.

In addition, I desire to report the following case:

L. R., female, aged 4 days, was brought to the outpatient department of the Alexian Brothers' Hospital on account of a deformity of the thorax on the left side. The infant was apparently otherwise perfectly developed. The baby had a transverse furrow just below the left nipple which extended from the vertebral column to the sternum. The flexed upper extremity fitted accurately into the depression. The area was covered by normal skin over a firm, fascia-like tissue. On respiration there was bulging and retraction of the thoracic wall over the defect, which was especially marked on crying.

On careful palpation no signs of ribs could be detected in the defective region. The heart pulsation could be felt at the upper part of the depression. The right side was normal. The left arm was in no way abnormal, nor were any abnormalities found in any other region.

On the eighth day after birth the child died. A post-mortem examination showed the cause of death to be pneumonia. The entire bony and cartilaginous thorax was removed, as well as the thoracic and abdominal viscera, the left scapula, brain, cord and lower end of the humerus. The thorax was normal on the right side. On the left side the first, second and third ribs were normal, except that they seemed jammed together and compressed laterally. The fourth and fifth ribs were fused together. At the costochondral articulation this bony structure became broader and was attached to the sternum by two cartilaginous bands. About 1.5 cm. of the sixth rib, attached anteriorly to the same length of cartilage was found in the thoracic wall without any connection of the rib or cartilage to the vertebral column or sternum. The seventh and eighth ribs and their cartilages were entirely absent. The spinal column was defective on the left side at the level of the sixth and seventh ribs and was covered with smooth pleura at the place where these ribs should normally be attached. The ninth, tenth, eleventh and twelfth ribs were floating. The xiphoid process was bifid. A slight scoliosis, with the convexity to the right, was present in the spinal column at the level of the defective region.

The accompanying skiagram clearly shows the scoliosis, the defective vertebral column and the complete absence of any vestige of the sixth, seventh and eighth ribs at the posterior region.

Dr. Abraham Myerson examined the other specimens removed, and found a scaphoid scapula (Graves), a patent ductus arteriosus and an open foramen ovale. Microscopically, syphilitic periarteritis was seen in nearly all the viscera and a double central canal of the spinal cord was found in the thoracic region. The bones showed no changes. Levaditi's stain for spirochetes was negative. Dr. Myerson also made a careful study of the father, mother and six children of the family, and found undeniable evidence of a syphilitic taint in all of them. The father gave a positive Wassermann reaction. There were no such defects of the ribs in any of the other members of the family. This phase of the case will be made the subject of a special study by Dr. Myerson.

The etiology of such anomalies is obscure. Ballantine⁹ states that "there is a large amount of evidence in favor of the view that some malformations of the chest-wall may be due to the pressure of the arm of the fetus in antenatal life." The muscles, mammary gland, nipple, subcutaneous fat and hair of the affected region may be involved in addition to the ribs. The hand, forearm and arm may also be defective. Ballantine believes that this association is explicable if the teratogenic cause be pressure.

Thomson¹⁰ made a careful study of a series of cases with congenital arrests in the development of the ribs, and has pointed out that these defects do not correspond to anything in the normal course of development and cannot, therefore, be regarded as an arrest of the same nature as mesial fissure of the thorax or abdomen. Thomson also mentions that nearly all of the structures in the lower pectoral region are prone to be affected and in a manner having no relation at all to their vascular or nervous supply. This author was led, therefore, to the conclusion that "the fetus was so acted on *in utero* that its arm was kept for a long time pressed firmly against its side and that in consequence of this continued pressure, not only was the growth of the parts retarded, but the absorption of some of them was brought about."

6. Freund: Quoted from von Bergmann-Bull.: System of Practical Surgery, New York, 1904, II, 449.

7. Labbé: Quoted by Legendre: Les Malformations costales par défaut, Thèse, Lyons, 1906, p. 53.

8. Gladstone: Jour. Anat. and Physiol., 1911-1912, xvi, 220.

9. Ballantine: Antenatal Pathology and Hygiene, New York, 1905, II, 148, 471.

10. Thomson: Teratologia, 1865, II, 1.

In the case which is here reported, the upper limb fitted accurately into the defect. The compression of the upper intercostal spaces and the fusion of the fourth and fifth ribs seem to indicate that pressure was present. The absence, however, of arm, forearm, or hand deformities, and muscle and breast changes, the presence of the scaphoid scapula, the double central canal of the cord, the patent ductus arteriosus, the fact that there seemed to be no attempt at development of the seventh and eighth ribs and the hereditary syphilitic taint, lead one to believe that the condition was due to an inherent defective development.

537 North Grand Avenue.

A VISCERAL DEPRESSOR

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The illustration represents a device intended to take the place of the tablespoon or the trowel in the closure of the abdomen. The rubber web keeps the bowel from bulging to the side of the instrument and getting in the way, which occurs with the smooth metal depressor. Further, there is the

Abdominal depressor with rubber web.

greater advantage of being able to withdraw the instrument through a much smaller opening.

Used in the pelvis, being opened after insertion, it serves as an excellent retractor to hold the bowel back from the pelvic organs without force or the irritation of gauze. There is weight enough to have it retain its position. For this purpose, however, I am having made an instrument with only one bend, and that at right angles.

The rubber webs are replaceable, withstand boiling, and are moderate in price.

VISCERAL DEPRESSOR FOR USE IN CLOSING LAPAROTOMY WOUNDS *

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The device illustrated is a simple cloth triangle with a hem on the two long sides to permit the introduction of the blades of a curved dressing forceps. The base of the triangle is $3\frac{1}{2}$ inches and the sides 5 inches. At the apex is sewn a piece of tape, 10 inches in length. This tape is to be fastened to one of the finger-rings of the handle, so that the triangle will not

* Presented before the Section on Surgery, New York Academy of Medicine, Nov. 1, 1912.

slip from the blades. The purpose of the instrument is readily understood from the drawing.

When an abdominal wound is ready to be closed, the instrument (forceps blades adjusted into triangle) is inserted, the points of the blades carried within the peritoneal cavity and brought against the under surface of the parietal peritoneum. The blades are now separated as widely as possible. This puts the cloth diaphragm on the stretch, and while retaining the viscera, permits of easy suture of the peritoneum, and the danger of piercing or suturing intestine or omentum in the wound is obviated. The suture of the peritoneum is carried down to the lock of the forceps and the forceps withdrawn, leaving the diaphragm within the peritoneum. The diaphragm is now withdrawn through the small opening and one suture placed in the opening. The instrument entire may be withdrawn if the operator so wishes. The device has been found

Fig. 1.—Blades of ordinary curved dressing forceps inserted into hems on sides of cloth triangle and tape tied to finger-ring.

Fig. 2.—Visceral retainer inserted in abdominal wound.

very useful and much superior to the clumsy gauze pad used for the same purpose. One triangle is to be sterilized with each set of taped pads.

223 West One Hundred and Thirteenth Street.

A SUCTION HAND-VALVE FOR CLEARING THE OPERATIVE FIELD

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The hand-valve here described, which is in use in the Students' Infirmary of the University of California, has proved a convenient addition to the suction apparatus for clearing blood or other fluid from the operative field, especially in throat operations.

Negative air pressure is secured by use of the ordinary filter-pump or ejector attached to a water faucet (Fig. 1). The carbonyl (b) is added to the system to give greater duration to the suction when it is being drawn on, air being pumped out of it for several minutes before operation begins. The mercury manometer, which hangs on the wall of the operating-