RUPTURE OF THE SYMPHYSIS PUBIS IN LABOR.[1]

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THE extreme rarity of this accident is justification for the report of the case which follows. Careful research shows that there is but one case in from 30,000 to 60,000 births, including both spontaneous and traumatic varieties.

While recent writers state that there are about 150 recorded cases in literature, these figures cannot be verified, and Kayser's estimate of about 130 cases, *plus* those since recorded, would indicate that the more correct estimate is about 140. It may be safer to state that the estimate varies from 140 to 150.

It has long been the teaching(1) that the articulations of the pelvis become softened and relaxed during gestation on account of the secretion from the synovial membrane lining their surfaces.

The extent to which this softening occurs is not stated by the authors who refer to this phenomenon. I do not think that it is so great as to cause difficulty in standing or walking in very many cases, at least such a condition has never been brought to my attention.

The percentage of cases of rupture which are caused spontaneously varies much according to different authors. Bar, the celebrated French obstetrician, considered forceps delivery, in certain conditions, responsible for most cases, but other authors are equally emphatic that the forceps has nothing to do with causing the fracture. Rudaux gives twenty-seven out of a total of ninety-eight cases as due to spontaneous rupture, which, if accepted, will show that only about 27 per cent. of all reported cases are spontaneous. In support of the fact that spontaneous rupture may occur, Boisliniere relates a case of eclampsia in which spontaneous rupture of the symphysis is reported to have taken place suddenly during an attack of eclampsia in a primipara of twenty years. In this case a crack was heard and the child was easily delivered by forceps.

Ahlfeld(2) records a case in which the pelvic articulations ruptured during labor, although the fetus was expelled within an un-

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ruptured bag of membranes—a fact which showed that the intrauterine pressure could not have been excessive.

In the majority of instances rupture of the symphysis is due to excessive or misdirected traction in forceps delivery. Of twenty-three cases of rupture of the symphysis collected by Havaje-Weiz (3) forceps had been used in eighteen. A rupture may occur in an attempt to deliver by forceps an unusually large head; or a normal-sized head through a contracted pelvis, or a head in a persistent occipito-posterior position. It may occur also with forceps applied to the head at the brim and forcible traction made in a direction anterior to the pelvic axis. Lusk (4) states that in a rupture of the symphysis no increase in the capacity of the pelvis is possible without simultaneous rupture of at least one of the sacroiliac synchondroses. At the symphysis the rupture is apt to be complete, at the synchondroses the rupture is usually confined to the anterior surface. It may take place in the median line, or upon the side, between the cartilage and the pubic bone. If the injury be slight, the synovial cavity of the symphysis may not be injured. At the synchondroses, opening of the joint cavity is inevitable. An excessive degree of the lesion is accompanied by laceration of the vagina, the bladder, and the intervening connective tissue.

The accident may be recognized at the time of its occurrence by feeling the bones give way, by hearing the bones snap as in the case of eclampsia referred to above, or it may not be detected until the patient complains of pain on moving, flexion or abduction of thighs or attempting to sit up or walk.

Complications may occur in the form of rupture of the anterior vaginal wall, rupture of the bladder, severe hemorrhages from rupture of the veins about the vestibule, or suppuration of the joint or soft parts.

The following is a brief report of the case occurring under my observation:

Case I.—Mrs. S., aged twenty-three, para-ü, the first child being born in New York City in 1910, forceps delivery. She was seen at 9.30 A. M. November 19, 1912. She had been in labor for ten hours, but had had practically no pain from the start having been given a tablet of H. M. C. by her attending physician at 4.30 P. M. the previous day. She had been in the second stage for two hours, and one hour previous to my arrival forceps had been applied and forcible traction made intermittently with no progress. Chloroform had been given for one and a half hours. I removed the forceps and an examination showed the occiput to be directly posterior. Because of the large caput, in order to make a diagnosis of the position, it was necessary to pass the hand into the vagina, which was

quite edematous, and without difficulty the head was at once turned to an L. O. A. position. The forceps was then reapplied to the head in the L. O. A. position and with unusually moderate traction the head was delivered. The child was profoundly asphyxiated, but respiration with the aid of the pulmotor was finally established.

While working with the baby and before the placenta was delivered, it was noted that there was considerable hemorrhage. The placenta was delivered at once by Crede's method with a continuance of the hemorrhage. Close examination revealed the fact that the bleeding was not from the vagina, but from a rent anterior to the vagina, near the urethra, and in an effort to pack this to check the bleeding, the finger followed back between the ends of the symphysis which were separated 2 1/2 inches. Pressure to the crests of the ilium was made at once and the wound in the soft parts packed with gauze. Encircling strips of adhesive plaster were put around the hips holding the severed ends of the bones in close apposition. She was catheterized for four days.

The puerperium was slow, one feature of the case being a continuously rapid pulse for two or three days, but this gradually subsided. The plaster was replaced by a specially constructed pelvic binder with straps and buckles and at the end of six weeks the union was complete. During the third week she developed a phlegmasia of the left leg and thigh with more or less constant pain over the inner aspect of the thigh. There is no pain now, but whenever she is on her feet long at a time the swelling recurs. There is no mobility of the symphysis or pain in this region.

In passing, I wish to say a word in regard to the management of occipito-posterior positions, and the absolute necessity of a positive diagnosis before forceps is applied. Occipito-posterior positions in normal-sized pelvis and head, must rotate anteriorly if birth is to be accomplished without great risk to the integrity of the soft parts. Nature does accomplish this in a large majority of cases, but only after a long, tedious labor and with great risk to the life of the child. If born as an occipito-posterior a severe tear of the perineum is practically inevitable. I am aware that there are exceptions to this rule; I have several times been astonished at the delivery of occipito-posterior cases without rotation with as little trouble as if it had been an anterior position, but these are decidedly the exceptions. Given a case with the history of no advance after one and one-half to two hours in the second stage, and an examination reveals an occiput posterior, a manual or forceps rotation will usually be very easily performed and with reapplication of the forceps in the new position the delivery can be easily accomplished. For the forceps rotation, the solid-blade instrument is much preferable.

The following abstracts of papers are given to illustrate the usual type of cases of rupture of the symphysis occurring:

Kriwski(5) states that the condition does not occur more than one in 10,000 births, and not so frequent according to some authors. Kayser(6) reports three in 94,000 births.

According to Winkel there were 124 cases altogether reported in literature up to 1907, but Kayser states that up to 1903 there were 130. The cases to the year 1898 are collected by P. Rudaux(7), this series showing twenty-seven spontaneous, seventy-one traumatic. Chrobak reports three cases out of 64,149 births.

The author states that the total number of cases reported in literature that he can find is 134.

The causes assigned are: infantilism; contracted pelvis; osteomalacia; new growths; acute and chronic inflammation; changes in the joints after severe labors; spongy condition of the joint due to pregnancy; malpositions; disparity between the diameters of the fetus and pelvis; muscular contractions affecting pelvis.

Huxley(8) reports a case, thirty-six years old, with several previous normal labors. Accidental fall two weeks previous to this labor probable factor. Very little discomfort to patient from this fall. Labor not prolonged, but much pain. Separation third day after labor caused by patient moving in bed. Probably had commenced during labor. No outward rotation of lower limbs, nor were they totally incapable of active movement.

Recovery followed rest on back with a light pelvic binder. Union had taken place between the bones within twelve months after.

The author reported two of the literature cases in which conditions were similar; *i.e.*, healthy pelvic condition, but separation occurring some time after labor owing to abnormal movement of the patient. Skiagram showing separation accompanies this report.

Loescheke (9) investigated whether the pelvis undergoes changes during pregnancy and labor, whether it is a rigid, bony girdle, or to what degree it is capable of dilatation during labor. He finds the constituents of a joint formation and a disposition to relaxation in the pubic symphysis. He considers the question of the degree of pelvic enlargement as well as of a general involvement of the entire osseous system during pregnancy. He claims that the symphysis is normally without cleft. The static relations of the pelvis vary in children and adults and the symphysis of the adult is subjected to a relative and well-marked increase in pressure greater than that of a child. If clefts appear in the symphysis they are divisible into two varieties, the first of which are the result of a degeneration of the articular disc and appear in adults of both sexes. Traumatic clefts are present only in women who have borne children and are not

limited by any anatomical boundaries and result from trauma during labor. The author finds that during labor the symphysis is subject to well-marked stretching and that the increase in the pelvic inlet may amount to several square centimeters. The sacroiliac synchondrosis assumes the rôle of a joint during labor. In every pregnancy a permanent increase of the pelvis results from new growth of the bones. In multipara cases were observed in which the increase at the symphysis was more than 2 centimeters.

The author believes that the growth of the pelvic bones during pregnancy is part of a stimulus which involves the entire osseous system, and results from secretions of the ovaries, thyroid and hypophysis. He gives several statistical tables in support of his views.

Voron et Gounet(10) reports one case, an eighteen-year-old primipara. Forceps extraction. Author insists that this disjunction was due not to the intensity of the traction, but to the unilaterality of the traction on the frontal lake (lac frontal). Patient recovered after three weeks.

In the discussion Bar, the French obstetrician, said that true rupture is very rare. The most usual cause is the application of forceps in a very restricted pelvis, but on an elevated head.

Eastman(11) also quotes the number of cases in literature as about 150. Out of twenty-three cases sixteen were due to forceps delivery. Of Rudaux's ninety-eight cases, twenty-five were spontaneous and the others forceps delivery.

The author discusses the predisposing and proximate causes of rupture.

Reports one case, aged twenty-seven, para-ii. Instant before spontaneous birth snapping noise heard in room. Six weeks later operated on by crescent-shaped incision and suturing of bone with heavy silver wire. Union perfect in thirty-six days.

Brettauer(12) presented a case of fracture of symphysis pubis to New York Obstetrical Society. Aged twenty, married one year. Labor at term, March 8, membranes ruptured twenty-four hours before. March 7, bled freely entire day, weak intermittent pains. On afternoon of March 8 head had been on perineum over two hours and forceps applied. Child easily delivered. Few hours after delivery patient had severe hemorrhage, uterus packed. Packing removed three days after. Had severe chill. When author saw her, slightly delirious; temperature 104°; pulse 130; legs widely separated, active motion of them impossible. Vulvar region edematous to enormous degree. Bladder distended to its

maximum. Slight meteorism; transferred to hospital. Introitus raw, covered with greenish, yellow membrane. Tear in anterior right sulcus reached clitoris leading upward to cavity filled with blood, etc. In this cavity were the fractured ends of the pubic bones; between the bones was a soft nodular mass of prolapsed tissue (urethra and bladder).

Pelvis was strapped with zinc-oxide plaster belt reaching from umbilicus to middle of thigh. Cavity irrigated daily. Catheterized one week, no blood in urine. Edema disappeared in one week. *X*-ray showed fracture of left descending ramus of pubic bone and also a fracture of symphysis to right of the synchondrosis with separation of 2 inches. In spite of straps and belts a diastasis of 1 inch persists. No evidence of fibrous union noted (April 15); seven and one-half weeks after patient permitted to walk; has distinct "waddle."

Minuchin(13) reports one case (out of 18,000 births from 1905 to 1911) in the Basle Women's Hospital.

Woman, twenty-nine, para-ii. First child 1904; second 1910. Entered clinic July 6, 1910, in labor. Spontaneous symphysis rupture found. Child extracted by forceps. Woman had recovered (without complete union of ruptured symphysis) by July 19.

The author criticises points of similarity between other cases quoted in the literature and this one.

He states that the number of cases known in literature is "about 150," but he does not give particulars.

Scheurer(14) reports one case. Primipara twenty-nine years. Forceps extraction. Patient confined March 1, 1908. Immediately after birth condition of the patient (hemorrhage, etc.) caused examination. Symphysis found ruptured. Usual treatment, tight bandages, etc. By March 23 patient had recovered so much that active movement was possible. April 24, patient able to work and without pain. Symphysis fully consolidated. This rupture appears to have been caused by an abnormal development of fetus (weight at birth 4000 gm.). Many cases in literature from same cause. Also the prolonged labor as well as the configuration and degree of solidarity of the skull of fetus.

The most important contributions to literature of the subject, as well as those here given, in recent years are:

Ahlfeld. Die Verletzungen der Beckengelenke während der Geburt und im Wochenbett. *Schmidt's Jahrbücher*, Band clxix, page 187 (1876).

Kayser. Beitrag zur Frage der Symphysenruptur. *Archiv für Gynäkologie*, Band lxx, page 50. Braun V. Fernwald. Neber

Symphysenlockerung und Symphysenrupture. *Archiv für Gynäkologie*, Band xlvii, page 104. Mayer, A. Neber die Spontanruptur der Symphyse unter der Geburt (one case). *Beiträge zur Geburtshilfe u. Gyn.*, Band xi, page 200 (1906).

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705 SOUTH THIRD STREET.

DISCUSSION.

DR. EDWARD J. ILL, Newark, N. J.—It seems to me, this condition, is not as rare as the essayist would lead us to believe, for the reason that within a year I have seen three cases. I saw two that were brought in the hospital on a Sunday morning, and the last one was last June, the patient being the sister of a doctor. They were all caused by high forceps delivery. They all had ruptures of the tissues alongside the bladder. The bladder was separated entirely from the pubic bone, and two of them had vesicovaginal fistula; one had a rupture through into the rectum; three were treated by a method which I have used quite a number of times during my lifetime and my father before me, of putting a broad rubber band around the pelvis, with corset strings in front, which is a clean way

of handling the condition, and the bandages can be removed every day cleansed and put back again. These patients very soon regain their ability to walk . I am sure, I must have seen ten cases, and it never occurred to me to speak of them, as I did not know they were so rare. My father told me he had seen a great many of them in his lifetime. I think if we reported all our bad cases, we would have a good many more to report than the few that have been reported. I should think it would be a great mistake to sew the bone up during the acute stage of the illness. These wounds are terrible to behold in their raggedness. I have never seen such wounds, as one sees under these circumstances. While I have never seen a case so bad that it needed suture of the pubic bone afterward, I should think, if I had such a case, I would want to do it if the separation could not be closed otherwise. Some years ago we saw a late case in which the separation was an inch, and the union was so good that the woman had very little difficulty in walking.

Dr. Asa B. Davis, New York City.—I wish to say that I know of five cases which have not been reported. One case happened in my own experience and one in the practice of a private physician, and Dr. Morgan, of our staff, has histories of three cases. In our experience, they are rare complications in the Lying-In Hospital service. We have had something between 80,000 and 90,000 deliveries, and I have known of but two that have occurred in that number in which there was rupture of the symphysis pubis.

The case I speak of was that of a physician's wife. This was fifteen or more years ago. There were three of us in attendance. The head had partly engaged and labor had ceased to progress. I tried forceps which were still in place, and the younger man, who was well trained as an obstetrician and who now holds an important position as a surgeon, began attempts at delivery. As my back was turned to the case, I heard a distinct report and on examination I found a rupture on the right side up through the vestibule. The soft tissue was torn away from the bone and there was separation at the symphysis. There were sockets and spurs in the joint, clean cut, so that they could be seen distinctly. That woman made a slow recovery. She had difficulty in urinating for a time so that it was necessary to use the catheter. She was treated, first, by adhesive strips, and then with a belt with buckles, and later the difficulty in walking was pronounced in her case. For a time she was unable to walk, and then in about three or four months she could walk with increasing ease if she walked on a level floor. The moment she began to move up an incline or to go upstairs she would have great difficulty. She finally recovered completely and has since given birth to children without trouble.

Dr. Abraham J. Rongy, New York City.—I do not think separation of the symphysis or fracture of the pubic bone is so rare as we have been lead to believe. I know of four cases in the obstetrical service of Lebanon Hospital. In two there was spontaneous separation of the pubic arch. In one the pubic bone was separated by the after-coming head. In the fourth case, the pubic bone was frac-

tured during the high forceps delivery. In this case the urethra was torn away from the bladder.

Two of these patients were Italian women and I suggested at the time whether the question of rickets did not have any bearing on the cases. It is well known that a great number of women are rachitic and it is a question whether the bones of the pelvis remain as strong in these patients. Separation of the symphysis usually takes place when the head is not properly engaged and in patients who have a contracted outlet and in whom the anterior segment of the pelvic outlet is shortened. In two of these cases, I found the arch of the outlet typically flat and narrow and therefore the diameter of the head and pelvis were out of proportion, and when the head wedges itself crosswise, some separation is likely to occur.

In regard to the treatment in cases of spontaneous separation, very little treatment is necessary except rest in bed and a small strip of adhesive plaster around the pelvis. In the case of fracture of the pubic bone, we had a good deal of trouble on account of the mass of tissue that placed itself between the ends of the bone. However, surgical separation of the pubic bone, like in cases of pubiotomy, give very little trouble and the patient is kept in bed not longer than fourteen or fifteen days. The longest time I have kept a patient in bed, after performing a pubiotomy, was twenty-one days, and I have performed nine pubiotomies. I do not think these patients have much trouble in walking because the pressure and weight of the body does not fall on the pubic bones. The pressure is along the spinal column.