THE XIPHOPAGES, ROSALINA AND MARIA.

Several months ago we published in the SCIENTIFIC AMERICAN an account of two little girls who were joined together in much the same manner as the Siamese twins. In the article we published at that time, we stated that "with radiography it will be easy to ascertain whether the two bodies are absolutely consolidated or whether they are independent. If the latter is the case, a surgical operation might be performed with considerable chance of success."

Through the kindness of a correspondent of ours, Mr. Eduardo Braga, of the College of Granbury, Minas, Brazil, we are able to furnish our readers with some recent data in regard to this phenomenon, and also to reproduce a radiograph which has been taken of these little girls. The sisters, Rosalina and Maria, were placed in charge of Dr. Alvaro Ramos, surgeon in the Hospital Misericordia, of Rio de Janeiro, and the communication made by him to the Academia Nacional de Medicina and the Sociedade de Medicina e Cirurgia of Rio de Janeiro, will be read with interest. Dr. Chapot Provost, lecturer of the Academia, is of the opinion, since the preliminary operation described in the report has been made, that it might be possible to perform a successful operation, but no such attempt will be made until the success of the operation can be more fully assured than is possible with the present knowledge of surgical science. Dr. Ramos, in the address of which we publish an abstract, says:

After the completion of the physiological experiments which proved the functional independence of the systems of Rosalina and Maria, I still had considerable doubts as to the nature of the tissues constituting the union of the two trunks, and as to the organs that might be found there.

At the last radiographic exposures, which formed the experiments of Roux and Balthasar,* strong doses of hyponitrate of bismuth were administered to the two girls, and owing to its opacity to Roentgen rays, this substance was revealed in the stomachs and in some of the intestine coils, thus proving that there is no connection of these organs in one abdominal cavity with those in the other.

Although I was much encouraged by this result, I still had no certainty as to the (possible) union of the livers, a point which could not be cleared up by the radiographs and to which my attention had always been directed, not only on account of the published results of five autopsies † in similar cases, including that of the celebrated Siamese twins, but further for terato-genetic reasons.

After making up my mind to try an operation, I diligently took all possible precautions, in order that, if the desired result could not be attained, the unsuccessful operation should at least have no disastrous effect; for this purpose, besides gathering around me colleagues of the highest ability, my companions in the daily work at the great school of the Misericordia (a Rio Janeiro hospital), I provided myself with instruments and materials to meet any emergency that might arise during the operation.

First I explained to them the plan I intended to follow. I proposed to begin with laying open the abdominal cavities; then to ascertain if all their organs were completely separate; and, finally, if the possibility of a complete separation was demonstrated, we should cut the cartilaginous ligaments which are at the base of the ensiform appendices and of the false rib; by preserving these ligaments until the end, we should insure the healing of the operative wound notwithstanding strains, in the event the operation could not be completed, as unfortunately turned out to be the case.

After fitting up two operating tables and the necessary appurtenances, and distributing the implements, Drs. F. Fajardo and Miguel Pereira were intrusted with chloroforming Maria, and Drs. Miguel Couto and Antonio Leão with chloroforming Rosalina. Fifteen to twenty minutes later, the two sisters were perfectly anesthetized, and laid on the first table—Rosalina on the right and Maria on the left; the side on which the thoraces were sunk in most was on top.

I began the operation by an incision of about six centimeters in the skin of the abdomen of Rosalina, a curved incision, with the concavity facing toward Maria, distant, at the half height of the connection of the two bodies, about three centimeters from the median line.

The skin having been folded over toward Maria, I found on the median line of the connection the separation of the two recto-abdominal muscles, the right one of Maria and the left one of Rosalina. After moving these aside, as well as the aponeuroses, I first met the fat pre-peritoneal tissue, and then cut through the peritoneum common to both cavities. This opening I enlarged by continuing the initial incision downward four to six centimeters, to the lower end of the connection, leaving the umbilicus on Maria's side. It then became easy to recognize the separation of the intestines and of the stomachs, and to thus confirm the result of the radiographic experiments of Roux and Balthasar.

Turning then my attention to the upper part of the incision, I discovered at once, through the very thin and transparent peritoneum, the dark color of the livers, partly covered by the cartilages of the sixth and seventh ribs. To further facilitate the examination, I continued the incision three or four centimeters upward, in the direction of the median line of the connection, and in doing this I was compelled to cut through the cartilages connecting the left seventh rib of Rosalina with the right seventh rib of Maria. The cut also passed through the lateral insertion at the left of Rosalina's diaphragm on the cartilage connecting the two ensiform appendices.

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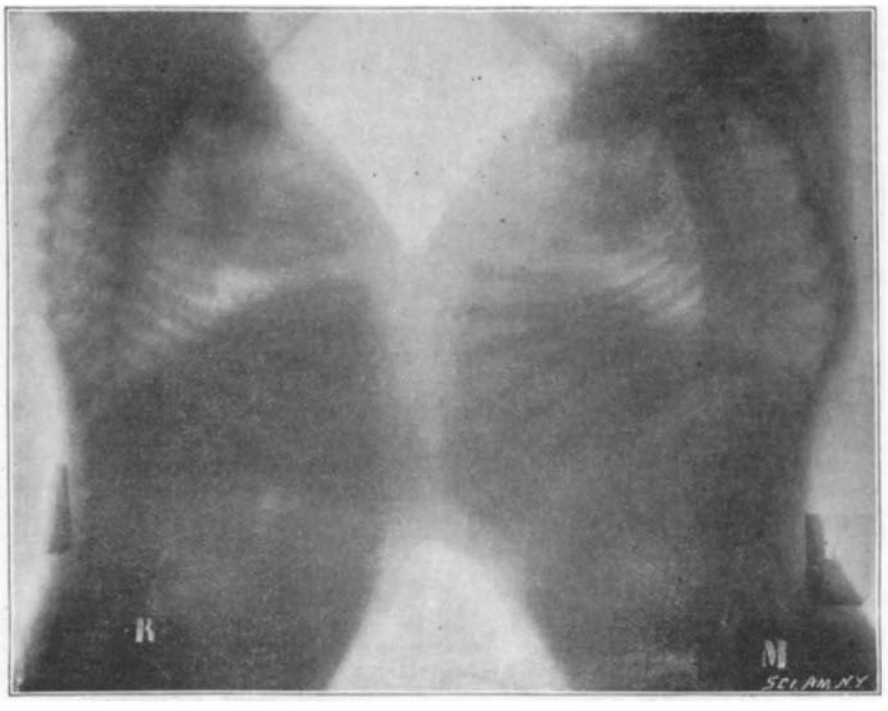

RADIOGRAPH OF THE XIPHOPAGES, ROSALINA AND MARIA.

Through this opening was plainly visible the bottom of Rosalina's left pleuro-costo-diaphragmatic pouch, and by putting the hand against the lower face of the diaphragm, one could easily feel the heart-beats in the direction of Rosalina's left side, which seemed to me to prove that her heart was not directed toward the right, confirming my previous opinion, founded upon the difficulty of auscultation on the left-hand side, and upon the entire absence of the kick of the apex.

Immediately below the diaphragms were the livers, united by the left lobes, which appeared to form a single body common to both livers, each of which had its particular gall bladder. At the height of the central line there was a suspending ligament, which, from its attachment to the connecting cartilage of the two ensiform appendices, extended to the common chamber of the two livers. In the hope that this ligament might be continued through the parenchyma of the livers, thus forming a septum separating the two lobes, I made an incision in this part of the common chamber, and to my disappointment, instead of finding a septum, I ascertained the continuity of the parenchyma.

I cannot indicate definitely the relative positions of all the other viscera, since the positions had partly been changed. I confined myself to ascertaining the extent of the surface connecting the two livers, and putting my right hand around them, with the fingers in contact with the lower or concave face, and the thumb over the convex top surface, I estimated that the surface to be cut would be about ten centimeters in length and three or four centimeters in width, corresponding to the thickness of the lobes at this point.

Such an operation with all the preparations for insuring hemostasia and the safe replacing of the livers in the abdominal cavity, in accordance with the latest methods of resection of the liver, would certainly require a quite considerable amount of time. This, added to the time already spent on the investigation, was more than these tender organisms could be expected to resist successfully, and every minute still further reduced their vital energy. I concluded to proceed no further. The wounds were dressed in the usual way, and after being awakened without difficulty, the two little girls were soon pretty lively and did not exhibit any great prostration, it being remembered that the loss of blood was very small, since not one hemostatic ligature was required.

Thus the double investigatory laparotomy was fully crowned with success. While I did not achieve what I had hoped I might possibly be able to accomplish, I have at least the satisfaction of having, without injury to the patients, ascertained the conditions of the problem, the best solution of which we have to seek. With surgical methods now known, the separating operation would have a fatal result unless there should be found a method of reducing the parenchyma connecting the two livers, or unless, at least, such a reducing or regressive process should be brought about by some mechanical means.

We desire to express to Mr. Braga our thanks for his kindness in sending us photographs and radiographs of the two sisters and the report of Dr. Ramos.

* Hartmann et Terrier. Chirurgie de l'estomac, 1899.

† Medical Times Philadelphia, Feb., 1874; The British Medical Journal, June 2, 1877, page 1273; Medical Press and Circular, Oct. 31, 1889, by K. Csaky Padolin. Weekblad van het Nederlandsch Tydschrift voor Geneskunde, No. 10 of 1887; Revue Medicale de la Suisse Romande, No. 2 of 1882.

Effect of Light on Chemicals.

An interesting phenomenon has been observed by Wilhelm Marckwald in connection with the change of color undergone by certain bodies upon exposure to light, without being otherwise altered in composition or structure. The anhydrous chloride of quinoquinoline, upon exposure to light, changes from a yellow color to an intense green, returning to its original state when heated to 90° C., or if kept in the dark for a few days at the ordinary temperature. This change of color is brought about in a few seconds by exposure to bright sunlight, and in a few minutes by diffused daylight; it is chiefly due to the more refrangible rays of the spectrum. No effect has been observed with the X-rays. A similar action has been observed with the body known as β-tetrachloro-α-ketonaphthalene, which crystallizes from its solutions, forming colorless and transparent crystals. These, when powdered and exposed to the light, change to an amethyst color; the large crystals upon exposure show a reddish violet color in one direction. These changes do not appear to be connected with a chemical or crystalline modification, and by fusion a non-sensitive modification may be obtained, which slowly returns to the sensitive form. To these phenomena the experimenter gives the name of phototropy.

SOME interesting experiments have recently been carried on at Chelmsford on signaling by flashlight from arc lamp projectors in the same way as is being done in Africa from Kimberley to the Modder River, and from Ladysmith to the camp at Chievely, says the English Electrical Engineer. It was found that the bright moonlight seriously hampered the signaling on one occasion. The height of the clouds also has a considerable effect upon the speed and ease of signaling.