# BRIEF COMMUNICATIONS

## CONGENITAL VENOUS CYST OF THE MEDIASTINUM

A CONGENITAL venous cyst of the mediastinum, so large as to produce serious obstruction to respiration and to venous return through the innominate veins, is sufficiently unusual to warrant its being recorded. I have been unable to find a report of a similar case.

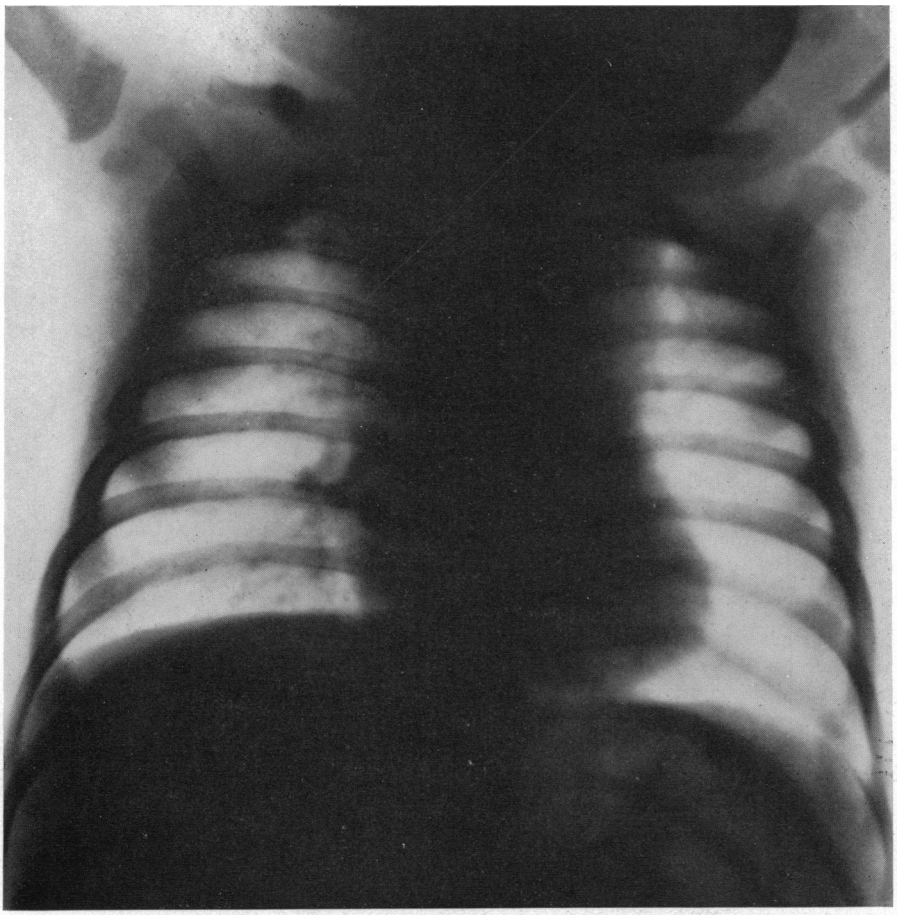

FIG. 1.—Skiagram of the infant's chest at the time it was first seen. Note the enormous widening of the mediastinal shadow which was misinterpreted as being due to a greatly enlarged thymus. X-ray treatment did not reduce the size of this shadow or cause the disappearance of her symptoms.

A female infant, five months old, was brought to the Out-Patient Department of the Hospital for Sick Children with the complaint that for four weeks she had suffered from (1) a swelling on the right side of the neck, (2) a peculiar spasmodic cough, (3) a hoarse cry, and (4) attacks of cynanosis.

Examination revealed a normal baby except for the swelling in the neck and its associated signs. Beneath the lower end of the right sternomastoid was a rounded swelling approximately the size of an egg. The size of the mass was not constant, however, but varied with respiration. On forced expiration, as in crying, it became much larger, and during inspiration it diminished greatly. The walls were soft and thin. Fluctuation was readily elicited. The mass had not the firm induration of an inflammatory mass nor the resistance of a branchial cyst. There was no corresponding mass on the opposite side. Redness, tenderness or other evidences of inflammation were not present. The temperature was normal and the throat was not inflamed. No enlarged

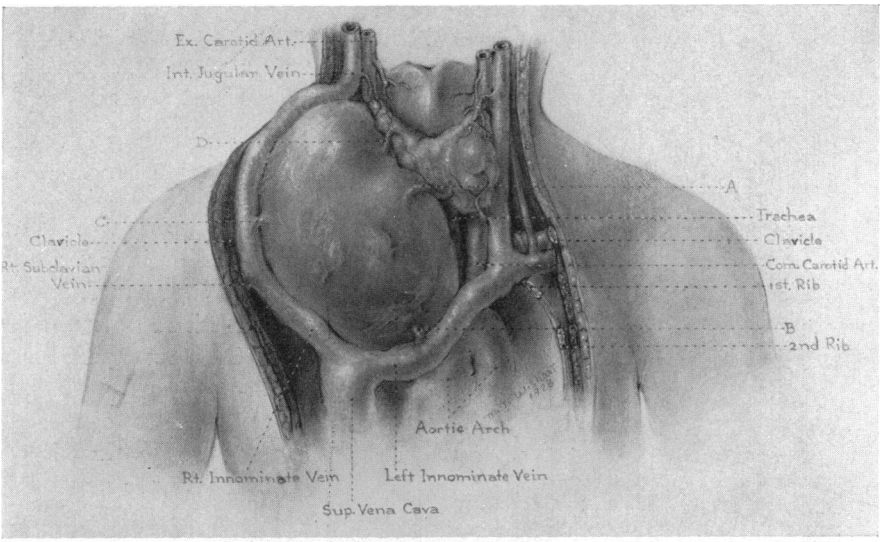


FIG. 2.—Drawing of the cyst and its relations, reconstructed from operative and post-mortem findings. A, B, C and D represent the venous radicles by which the cyst communicated with the surrounding veins. It was rupture of the radicle "A" which permitted collapse of the cyst.

cervical glands could be felt on either side. The infant's cry was peculiarly hoarse, and from time to time a spasmodic cough distressed the child. The face was constantly cyanosed and this cyanosis was noticeably increased when the child cried.

The tumor felt like a greatly enlarged jugular vein, but a diagnosis between this and a cystic tumor lying upon the jugular vein and pushed into greater prominence when the vein was distended was not possible. In an effort to reach a diagnosis the tumor was aspirated. Pure venous blood was obtained, which proved sterile on culture. This appeared to confirm the diagnosis of dilated jugular vein. Such venous enlargement and the cyanosis pointed to some obstruction to venous return. In this connection, an enlarged thymus was thought of as a possibility. X-ray of the chest (Fig. 1) revealed an enormous mediastinal shadow in the region of the thymus, which was interpreted as a greatly enlarged thymus pressing upon the right innominate vein and causing the peculiar symptoms. The unilateral distribution of the signs could not be interpreted.

The child was treated for enlargement of the thymus by an adequate dose of X-ray. At the end of six weeks its condition was much worse, and X-ray showed no diminution in the size of the shadow. It then became evident that the shadow seen in X-ray could not be that of an enlarged thymus. The physical findings were much changed. Embarrassment of respiration was now extreme and cyanosis was constantly present. The tumor now projected above the clavicle and behind the sternomastoid instead of lying under the latter. It no longer fluctuated but gave the impression of being a solid rounded tumor about the size of an egg. It underwent the most extreme excursion

during respiration. During inspiration it completely disappeared behind the clavicle; during expiration it rose forcibly from behind the clavicle and projected into the neck. The range of this movement during forced respiration was four inches.

It was now felt that the mass was a solid mediastinal tumor, probably a sarcoma, and operation was deemed justifiable.

Under ethyl chloride and ether anæsthesia, the mass was exposed by means of a transverse incision across the right sternomastoid one inch above the clavicle. It proved to be an ovoid tumor about the size of a lemon, extending from the position it occupied in the neck downwards into the mediastinum. It had firm and clearly defined walls which were not adherent to the surrounding structures. It moved freely with respiration up and down in the mediastinum. It appeared at first to be solid, but in separating it from the thyroid a venous radicle was torn across, resulting in a gush of venous blood and the collapse of the tumor. It was then evident that it was a venous cyst. After collapse of the cyst no further hæmorrhage occurred, indicating that such venous communications as must have been present at one time were now obliterated. The mass was separated from the surrounding structures and removed. During the latter part of the long operation, the pulse and respiration failed rapidly and in spite of transfusion of blood and the administration of adrenalin, the patient died just as the operation was completed.

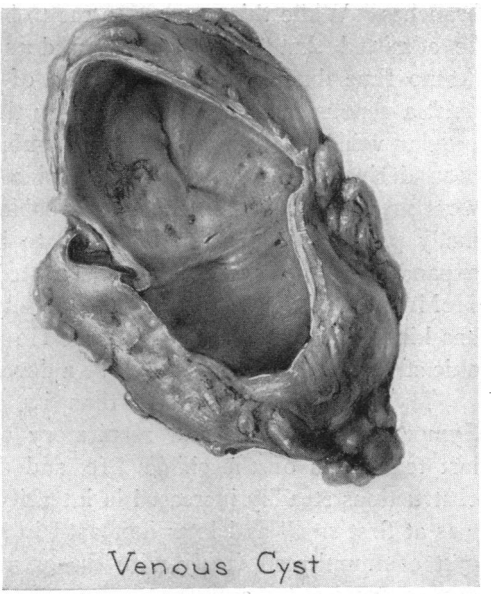


FIG. 3.—The appearance of the pathological specimen.

A post-mortem examination was performed. Data obtained from this and from the operation permit the following description: The mass was a venous cyst as large as a lemon. Its relations are represented in Fig. 2. It lay behind the right sternomastoid, right clavicle, right first rib and sternum. The trachea was covered by the mass and compressed by it. This accounted for the difficulty in respiration. The tumor filled the notch between the two innominate veins. It received two large radicles, one from the right jugular vein and one from the left innominate vein; and several smaller radicles from the inferior thyroid group of veins. The thyroid lay at the upper pole of the mass. There was no communication with the arteries.

Microscopic examination of the cyst wall showed it to consist of œdematous connective tissue containing a few muscle fibres. An intact endothelium lining was not present but here and there a few scattered endothelial cells were to be seen. The interior of the cyst was for the most part smooth. There were, however, a few sacculations, and here and there the crevices and slight irregularities were filled with thrombotic deposit which was undergoing organization.

## COMMENT

I am unable definitely to classify this tumor. The possible conditions which might have given rise to it are (1) an organizing hæmatoma, (2) a cavernous hæmangioma, and (3) a congenital abnormality of the veins. The first suggestion seems hardly to be a possibility. There was no history and no

evidence of injury sufficiently severe to have caused such a hæmatoma. The mass was clearly defined and firm walled, and at one time it communicated with the surrounding veins by large venous channels—facts which seem incompatible with a hæmatoma. The second suggestion may be a possibility, but if this was a cavernous hæmangioma the single cyst was of enormous size and the distinction between such a cyst and a congenitally abnormal vein is ill defined. I am inclined to regard it as a venous cyst of congenital origin due to an abnormal arrangement of the primitive cardinal veins and their branches. While this appears to me to be the most likely possibility, it must be admitted that such an opinion does not explain all the clinical facts. At no time during the usual course of embryonic development does there exist a venous communication between the left innominate and right internal jugular veins. If it arose from an embryonic vein it must, therefore, have been derived from an abnormally placed one. Even though such a vein were present it would be more reasonable to expect it to persist as an abnormally placed vein than to expect it to become transformed into a steadily expanding venous cyst. I have submitted the data of the case to Prof. J. P. McMurrich, of the department of anatomy of the University of Toronto, who has kindly examined them for me. He was not able to suggest any embryonic structure of which it might be a development.

There are features other than its origin which are equally puzzling. Symptoms of venous and respiratory obstruction did not occur until the last ten weeks of the child's life, and during this period the evidences of obstructions steadily increased in intensity. This would indicate that the mass was at first small and later increased in size. Moreover, when first seen the cyst communicated freely with the great veins, as indicated by its collapse during inspiration and the failure of aspiration to diminish its size. Its apparent solid nature six weeks later, and the lack of bleeding after the cyst had been opened indicated that the free venous communication had been obliterated. I am inclined to the opinion that the X-ray treatment had something to do with this alteration in its nature.

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## THE APPENDIX AS A PROVISIONAL ORGAN

The appendix has hitherto been regarded as the vestigial remnant of former development, and in consequence thereof students have been trained to fall upon and destroy it without mercy whenever it could be approached. Some recent experiences of mine have caused me to pause and speculate concerning its history and purpose, and I am constrained now to regard it as a *provisional rectum,* to be so used in emergencies that render drainage and relaxation of the large bowel a matter of extreme importance. Its location can be seen at a glance to be strategic, allowing access to both the large and the small bowel and communicating with the portion of the large bowel in which the contents are still liquid. To reach the cæcum from the

rectum a distance of five or six feet must be traversed over a difficult and tortuous route, against obstacles and through much pain to the patient, while to reach it through the provisional rectum, a term which I am pleased to apply to the appendix, requires only the thickness of the abdominal wall, probably two to four inches, and that over a straight and direct, unobstructed, uncomplicated pathway.

I am fully aware that what is known as appendicostomy has for many years been employed for treatment of ulceration and other affections of the colon. In other words the purpose has been to achieve the introduction of medication for local therapeutic contact with the bowel. If we judge by the rarity of the application of this procedure, its usefulness must be in grave doubt; while the aims I have sought to make the organ serve are locally to drain and constitutionally to obtain absorption of fluids and nourishment.

The cases in which I have used this method are fifteen in number, and represent the types of abdominal cases that after the operation become afflicted with ileus, distention, peritonitis and death. One case more illustrative than the others consisted in an old abscess of the right tube which made it necessary to resect the bowel in the presence of pus and the peril of general peritonitis. Another representative case of the group was a perforated gastroduodenal ulcer with a hole as large as a lead pencil and the abdomen filled with gastric and duodenal contents. Also, one case of delayed operation for obstruction that looked hopeless. The method employed is to cut and tie the meso appendix, which gives the appendix extensive freedom. The appendix is then pulled through the lower angle of the operative incision, bringing the cæcum against the parietal peritoneum. A sterile safety pin impales its mesenteric border which prevents its slipping back. The end is clipped off and a catheter of a size that will fit snugly is passed through its lumen well into the bowel. The incision is closed in the usual manner and the end of the catheter is left outside the dressing.

You will be greatly astonished at the number of perplexities this simple device will relieve. The large bowel can be readily drained both of gas and feces.

The whole of the large intestine can be filled with water or salines for its gradual absorption. Solution of Epsoms salts can be given in whatever quantity desired. Castor oil or any medicine that is indicated, all without fear of rejection, but with assurance of therapeutic result.

In about six days the appendix sloughs and the catheter can be removed if it has served its purpose. It can be allowed to remain as long as there seems to be any need for it. As soon as the catheter is removed the opening closes promptly. There never has been any hint of a fecal fistula resulting. Fourteen of the fifteen patients I have used it on so far have recovered.

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