

The peritoneal cavity is usually opened in this operation, thereby adding another element of danger from extravasation of fæces.

Finally, we come to the most satisfactory operation for the relief of the majority of cases, colotomy. This is now most frequently done in the left inguinal region, for the reason that the operation is more quickly and easily performed, the wound can be attended to far better by the patient, and the danger is no greater than in the loin. The relief to the obstructive pain or colic is usually complete and permanent. The pressure-pain may still require opiates or other treatment. Many lives are prolonged; and, more than that, they are made comparatively comfortable by this operation. In most cases the patient can keep himself clean and free from odor. A woman upon whom Dr. Bradford performed right lumbar colotomy worked for many months alongside another woman, without the latter ever suspecting that anything was the matter with her companion.

Kelsey's description of the operation is the best one I have seen. The incision parallel with Poupart's ligament is made about an inch from the left anterior superior spine. The peritoneal cavity is opened, and the colon brought out of the wound. The "bar" is made by joining the edges of the incision with a silver wire passed underneath the bowel. The intestine is then joined to the edges of the wound with sutures, and two or three days allowed to elapse before the bowel is opened. The operation is neither difficult nor dangerous, and in very many cases it is a most satisfactory one to both patient and surgeon.

By way of recapitulation it may be said, that the treatment of malignant disease of the rectum is essentially palliative. Colotomy is indicated to relieve obstructive colic, and it should be done early in order to save the patient's strength. The radical operations are indicated in the early stage, when the growth is limited in extent, free from deep adhesions and infiltration, and not infringing upon the urethra or prostate. Opium, the king of drugs, is to be avoided as long as possible, and given judiciously, in order that its beneficial effects may not be lost by over-doses before the time comes when it is needed the most. While the disease is incurable, very much can be done by judicious management to make the patient's life endurable and his death peaceful and easy.

#### A CASE OF PULMONARY STENOSIS IN AN ADULT.

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THE following case is interesting in that the diagnosis was made incidentally, and not because the patient complained of any symptoms pointing to her heart. Furthermore, the rarity of the lesion in an adult makes it worthy of record, as well as the fact that the patient has attained her present age with so few symptoms. Professor Loomis, in reporting a similar case,<sup>1</sup> speaks of it as one of the "curiosities of medicine."

Mrs. X., twenty-seven years old, a native of the State of New York, of French-Canadian parentage, applied for admission to the Memorial Hospital, November 10, 1893, thinking she had typhoid fever, as

she had been taking care of a patient with that disease. She had a slightly elevated temperature, and was admitted for observation. She says she has always been fairly well, though never strong and cannot do hard work without getting tired and out of breath. Even as a girl she could not join in active plays. There is no history of rheumatism, chorea or other disease except scarlet fever and *la grippe*. When she was ten or twelve years old her dyspnoea became more marked; and in the course of the next few years she was examined by several physicians, who said she had heart disease. There has been nothing abnormal about menstruation since that function was established at the age of fourteen. Since that time she has never but once consulted a physician for her heart. She was married ten years ago, and has had four children. She has always suffered from cold hands and feet, and occasionally has had slight swelling of the ankles. She does her own house-work, with some help about washing and ironing.

She is a fairly strong-looking woman, of medium height, face slightly flushed, but not cyanotic or livid. Finger- and toe-nails somewhat rounded, and blue (instead of the normal color) under them. On examination of the chest the most striking point is a long inspiration, like a sigh, occurring from three to six times a minute. She says she always breathes in this way, feeling as if she should smother otherwise. The night-nurse reports that there is no irregularity in her breathing when asleep. The apex beat of the heart is faint and diffused, and can be only definitely localized when she is sitting up. It is then found in the mammary line below the seventh rib. No thrill is perceptible over the heart, nor any impulse to be felt below the ensiform cartilage. The heart's dullness begins at the upper border of the fourth rib, thence to the apex beat, and thence to the middle of the sternum. Over most of the cardiac area the heart-sounds are normal, though rather faint, and there is no murmur over the aortic valves. To the left of the sternum, however, in the first, second and third intercostal spaces, is a soft, blowing, systolic murmur. Its point of greatest intensity is in the second intercostal space, close to the sternum, whence it may be traced upwards, and to the left, in a line pointing directly to the middle of the clavicle. Downwards it cannot be heard further than the third intercostal space. The murmur does not disappear on full inspiration. The pulmonic second sound is fainter than normal, and there is no thrill or impulse to be felt over this artery. Percussion and auscultation reveal nothing abnormal in the lungs. Dullness is normal over the liver and spleen. There is no ascites, and no œdema of any part of the body. Superficial veins of legs and upper part of the chest are well marked. There is no pulsation in the jugular veins, nor are they particularly prominent. The radial pulse is small and weak, has ranged between 70 and 90, and is alike on both sides. Examination of the urine shows it to be acid, specific gravity 1.015, and containing neither albumen nor sugar. Since being in the hospital she has once spit up a little blood, or bloody mucus, which I did not see, and have no reason to suppose came from the lungs; but the fact is interesting in view of the frequent termination of such cases in phthisis, with hæmoptysis often an early symptom. Her temperature became normal the next day after her entrance, and she has shown no symptoms of typhoid fever.

<sup>1</sup> International Clinics, 1893, second series, vol. iv, p. 13.

Having now a case of murmur over the seat of the pulmonic valves, the first question is as to its origin. Balfour<sup>2</sup> says, "The pulmonary area has been not inaptly termed 'the region of romance,'" referring to various interpretations which have been given to murmurs in this location. This is one of the less common situations of cardiac murmurs, which, when present are usually inorganic. Flint<sup>3</sup> says an inorganic pulmonic direct murmur is not infrequent, though it seems to be far less common than an aortic inorganic murmur. That the murmur in this case is pulmonic and of organic origin I feel very sure. It is not heard at all to the right of the median line of the chest, nor is it transmitted into the carotids as Flint<sup>4</sup> says is always the case with an aortic murmur. Neither can it be heard at all towards the heart's apex, nor in the back, as a mitral murmur would be; but can be traced from its point of greatest intensity, upwards and outwards, towards the middle of the left clavicle. All these points show its pulmonic origin. Murmurs in this situation have been ascribed by some authors to mitral regurgitant lesions, heard here instead of at the apex as usual. In accordance with this theory, which has been advocated by Balfour, the murmur comes from the dilated appendix of the left auricle coming close to the chest wall. Such a murmur is differentiated from one arising in the pulmonary artery by its point of greatest intensity being a little further to the left, in such a position that when the stethoscope is placed over it there is at least the width of the tip of the middle finger between the instrument and the left border of the sternum. With a pulmonic murmur the stethoscope, when over the point of greatest intensity, touches, or even overlaps, the sternal border. Authorities differ as to such a murmur being ascribed to mitral insufficiency. Flint dismisses it very summarily, saying the question is hardly worth the discussion which has been given to it. However that may be, there is in the case reported an entire absence of any symptoms pointing to mitral disease, and the murmur is best heard when the stethoscope is close to the sternum.

Now, most pulmonic murmurs are inorganic. Is that the case in our patient? I think not. The color of her skin and mucous membranes is good, and shows no sign of anæmia; there is no venous hum in the vessels of the neck; and the pulmonic second sound is fainter than normal, instead of being accentuated. The heart's dullness on percussion is somewhat increased; and there are positive signs of engorgement of the systemic veins, in the blue finger- and toe-nails, and the venous enlargement in the legs and chest. In addition to these points in the differential diagnosis, Bramwell<sup>5</sup> mentions the difference in the character of the pulse. In early anæmia it is of good tension, but irritable and variable in rate, while in pulmonic stenosis the pulse is small and weak, and may be intermittent. Furthermore, this patient has had rest, tonics and good food; yet while she feels better than on entrance to the hospital three weeks ago, her murmur is just as clearly marked as at first.

Dr. Nelson, at the Memorial Hospital, has very kindly examined this patient's blood, according to Ehrlich's method, as described by Dr. W. S. Thayer in the *Boston Medical and Surgical Journal* for Feb-

ruary 16 and 23, 1893, and finds no indication of anæmia. Dr. Nelson's report is as follows:

"Red corpuscles normal in size, form and color. Red and white corpuscles in normal proportion. Different varieties of leucocytes are in about normal proportion; neutrophils 75 per cent., eosinophiles four per cent., small mononuclears 18 per cent., large mononuclears and transitional forms three per cent."

For these reasons an inorganic, anæmic origin of the murmur may be excluded.

Before considering stenosis of the pulmonary artery as the cause of the murmur, there are some other conditions, which may give rise to it, to be taken into account. When the left lung is retracted, as by adhesions from an old pleurisy or by long standing disease, the pulmonary artery may be in contact with the inner surface of the anterior chest wall, making its pulsation visible and palpable, and producing a systolic murmur. There is no history of any such disease of the lung in this case, nor any physical sign of such a condition now existing. Balfour says that under these circumstances the murmur is produced by compression of the artery between the parietes and the heart in systole; and he describes such a case.<sup>6</sup> A murmur depending on retraction of the lung disappears on a full inspiration, which is not the case with this patient. Bramwell<sup>7</sup> speaks of cases where a pulmonic murmur was produced, which he ascribes to a deposit of lymph outside the pericardium, the result of an antecedent pleurisy. Pressure upon the artery by a tumor in the mediastinum, or by enlarged bronchial glands, may cause enough narrowing of its calibre to give rise to a murmur. In an article by R. Douglas Powell, in Reynolds's "System of Medicine,"<sup>8</sup> a case is given where an aneurism of the aorta pressed upon the pulmonary artery, causing signs of pulmonary stenosis, as well as those of a thoracic aneurism. Displacement of the heart by fluid may also cause a pulmonic murmur. Hayden<sup>9</sup> refers to cases reported by Da Costa, of pulmonic systolic murmur believed to be caused by the pressure of solidified lung on the left branch of the pulmonary artery. He also speaks of a case where such a murmur developed shortly before death, probably caused by thrombosis. None of the above conditions seem to exist in the case of Mrs. X. Her embarrassment of respiration dates back too many years, and has no history of any antecedent lung disease. One other cause of such a murmur needs only to be mentioned. In children, and in adults with thin, yielding chest walls, it may be produced by pressure with the stethoscope.

If then, this murmur is not inorganic, nor caused by pressure, or other causes outside of the artery itself, it must be caused by some obstruction within the vessel. This may be either a narrowing at the pulmonic orifice, some valvular lesion, or a diminution in calibre of the artery. Occasionally the stenosis takes place in the conus arteriosus, or infundibulum, of the right ventricle. Exactly what the condition is in a given case cannot be positively known. The general name of pulmonary stenosis embraces them all.

Such a lesion may be either congenital or acquired, with the probabilities very greatly in favor of the former. Rosenstein<sup>10</sup> says that there are only a very

<sup>2</sup> Clinical Lectures on Diseases of the Heart and Aorta, London, 1876, p. 194.

<sup>3</sup> Manual of Auscultation, etc., Philadelphia, 1890, p. 251.

<sup>4</sup> Loc. cit., p. 234.

<sup>5</sup> Diseases of the Heart and Thoracic Aorta, New York, 1884, p. 553.

<sup>6</sup> Medical Times and Gazette, London, December 12, 1874, p. 655.

<sup>7</sup> Loc. cit., p. 554.

<sup>8</sup> American Edition, Philadelphia, 1880, vol. ii, p. 899.

<sup>9</sup> Diseases of the Heart and Aorta, Dublin and London, 1875, p. 1003.

<sup>10</sup> Ziemssen's Cyclopædia, vol. vi, p. 155.

few scattered cases (he mentions four) of the acquired form, and on this point all authorities agree. In the *British Medical Journal* of a later date<sup>11</sup> is reported a case supposed to be acquired, and not congenital, and the specimen is described. It is usually the result of intra-uterine disease (endocarditis) or of arrested foetal development. A diagnosis between the acquired and congenital varieties in an adult cannot often be made with certainty. Keating and Edwards<sup>12</sup> say there is "no sign or sequence of signs by which a congenital murmur can be definitely differentiated from an acquired lesion." Bramwell<sup>13</sup> says the history of the case is the only means of differential diagnosis, and we may be helped by the fact that several members of a family may have congenital heart disease. He also says it is "only when symptoms and signs of cardiac disease have been entirely absent in early life that the diagnosis of the acquired form can be made." On the other hand, even the history of cyanosis and dyspnoea from early childhood is not conclusive proof of congenital disease, as such a history may be found in other cases.

So that unless the case has been seen, both before and after the establishment of the murmur, the differential diagnosis seems to be purely a matter of probabilities. Assuming then, as there is no evidence to the contrary, that we have a case of congenital pulmonary stenosis, let us see what is the usual course of such a lesion, and then compare this with the history of the present case.

Of all forms of congenital heart disease, pulmonary stenosis is the most common. This stenosis may be at the infundibulum of the ventricle, at the pulmonary orifice, or a general narrowing of the artery and accompanied by different conditions of the various fetal openings, in the heart and great vessels. The most common form is stenosis of the artery itself, as far as its bifurcation. With this condition is usually found either an open foramen ovale, or a deficiency in the ventricular septum. The ductus arteriosus may be either open or closed, more often the latter. The interventricular septum is normally closed at the third month of fetal life. If the pulmonic obstruction occurs before this time the blood finds its way through this opening, preventing its closure. Obstruction occurring after the third month finds some relief by the flow of blood directly from auricle to auricle through the foramen ovale. After birth, in either case, some blood goes to the lungs through the ductus arteriosus, if this remains open. If this is closed there is a certain amount of collateral circulation established by means of the bronchial, œsophageal, or other branches of the aorta. Compensation for the stenosis is not perfect by any of these means, so that there is usually hypertrophy of the right side of the heart, with more or less dilatation, and also cyanosis and enlargement of superficial veins, in greater or less degree. The more complete the compensation, the less marked are the symptoms, or as Keating says, compensation is the "key-note in prognosis" in these cases.

Bramwell divides cases of stenosis into three groups, according to the severity of the symptoms.

(1) Where the lesions are severe, and the patients die at once or soon after birth. If they live for any length of time there is great cyanosis, a subnormal

temperature, somnolence, dyspnœa, dropsy, and often fatal convulsions.

(2) The lesions are less severe, and they may live several years, but with heart symptoms from the first. Cyanosis may be only noticeable on coughing or exertion, and is more marked on the periphery of the body. Fingers are clubbed, and superficial veins prominent. When compensation becomes imperfect, or is interfered with by intercurrent bronchitis or other trouble in the lungs, to which these patients are very liable, dyspnoea and palpitation increase. Œdema is usually a late symptom, at which period there may be convulsions. At the same time albuminuria and enlargement of the liver and spleen may be found. If the patients survive puberty, they generally die young from phthisis. Hæmoptysis is frequent, being often the earliest symptom of lung invasion.

(3) The lesions are slight, and symptoms may not arise till years after birth. They are caused by failure of compensation, which is either gradual, or brought about more rapidly by intercurrent disease. At about the time of puberty, compensation is very apt to be disturbed. The cases then run the same course as if the symptoms had been present from early life.

Children with this defect usually develop slowly, both mentally and physically. Menstruation is apt to be late in its establishment. The hypertrophied heart presses upon the yielding ribs and cartilages, causing a bulging of that part of the chest wall. A majority of the cases die before adult life is reached. The elements which favor survival are a slight or moderate degree of the fœtal passages, a sufficient opening through some of the fœtal passages, and a good collateral circulation. Lebert<sup>14</sup> quotes a table from Kussmaul showing that out of 64 cases, 41 died under ten years of age, 14 between ten and twenty years, and only 9 lived beyond twenty years. One case of undoubtedly congenital stenosis lived to the age of sixty-five, and two cases of complete closure of the artery died respectively at twenty-one and thirty-seven years (Lebert). Another, with stenosis and open foramen ovale, died at fifty-seven, from cerebral apoplexy (Keating and Edwards, p. 38). These cases are, of course, exceptional. As a rule, even for favorable cases, middle age will not be passed, and there is a remarkable tendency for them to terminate in pulmonary tuberculosis, a combination which is rare in any other form of heart disease. This is a curious fact to which Lebert (in "Ziemssen's Cyclopædia") devotes considerable space. He finds that the cases so terminating show no hereditary tendency, and he can only ascribe this frequency of tuberculosis to a deficient blood-supply in the lungs, and the pressure upon them of an hypertrophied heart. The left lung is usually first attacked.

As no dyspnoea was noticed in the patient till she was ten or twelve years old, while it usually appears early, the following table (Keating and Edwards, p. 41) may be interesting. In 41 cases of congenital defect, cyanosis first appeared at the age of

[illegible]

<sup>11</sup> December 17, 1881, p. 983.

<sup>12</sup> *Diseases of the Heart and Circulation in Infancy and Adolescence*, Philadelphia, 1888, p. 35.

<sup>13</sup> Loc. cit., p. 555.

<sup>14</sup> Ziemssen's Cyclopædia, vol. vi, p. 321.

In only nine did cyanosis first appear after the age of five years.

The case reported seems to be one of a mild degree of stenosis, and she has been able to live in great comparative comfort. She has been singularly free from any diseases tending to disturb the compensation effected by her moderately hypertrophied heart. There is evidence of some disturbance of compensation at about the time of puberty. She says she has had *la grippe* twice; but, if so, her account shows that neither attack could have been very severe. Cyanosis only shows itself in the extremities, and there has been no œdema except occasionally at the ankles. She has the cold hands and feet mentioned by the authorities. The physical signs about the heart and lungs support the diagnosis, though the cyanosis and dyspnoea, even on exertion, are of a milder degree than usual. Sansom,<sup>15</sup> however, reports the autopsy of a child where pulmonary stenosis was found, though there had been absolutely no cyanosis, but rather pallor. The indications of hypertrophy of the right heart are less marked than usual, and there is not the epigastric impulse usually felt; yet this symptom was entirely absent in a case of congenital stenosis<sup>16</sup> where great hypertrophy of the right ventricle was found, and where the symptoms came on suddenly at the age of eighteen. Her lesion is not severe enough to have interfered with her growth and development. As long as no extra strain is brought on her heart she is likely to go on as she is for some time. She has lived unusually long without the appearance of tuberculosis, which may be expected to develop later. It would not be surprising to see it show itself by hæmoptysis at any time, though at present her lungs seem to be in a normal condition.

The cause of cyanosis is an interesting question in this connection, which has been argued by several writers. Two theories have been advanced. According to one the coloration is due simply to venous stasis, the blood backing up in the right side of the heart, and then in the systemic veins. The other theory ascribes cyanosis to the fact that there is a mixture of unoxygenated blood circulating with the arterial blood, the two being allowed to mingle by the persistence of one or more of the fetal openings which should have closed under normal conditions. Some think the color of the surface is due to the operation of both of these causes combined. In an article on cyanosis in the *Practitioner* for 1888, the writer takes the ground that less than a normal amount of blood goes to the lungs in these cases. The lungs then become partially collapsed, respiration is impeded, and what blood does go to the lungs is not properly aerated. This he regards as one of the most important elements in producing cyanosis.

### THE RADICAL CURE OF HYDROCELE.<sup>1</sup>

BY M. F. GAVIN, M.D.

THE different methods used for the radical cure of hydrocele are antiseptic incision, excision of a part or the whole of the sac, and injection: all other methods are now obsolete. It is with the last-mentioned method my paper will mainly deal. The open inci-

<sup>1</sup> Read before the Boston Society for Medical Observation, January 1, 1894.

<sup>15</sup> Lectures on the Physical Diagnosis of Diseases of the Heart, Philadelphia, 1876, p. 130.

<sup>16</sup> Lancet, August 2, 1884, p. 183.

sion, with or without excision of the sac, means the administration of an anæsthetic, detention in bed for a varying period from one week to four, while to undergo an operation has considerable effect on the minds of most of our patients.

There are cases where the open incision is the only operation to be considered: where there is a question of diagnosis; where a hernia exists; where injection has failed — congenital hydrocele; where the sac is much thickened. In all of these some form of open operation is called for.

There is a large class that can be successfully treated by injection. Perhaps it is well to inquire why injection has so often failed to cure the disease.

Let us hear the explanation as given by Jacobson, for the many failures: (1) The use of too weak a solution; (2) not bringing the solution in contact with the whole of the sac; (3) not withdrawing all the hydrocele fluid; (4) injecting large hydroceles immediately after they are emptied; (5) making use of injections in unsuitable cases.

No simple, uncomplicated case of hydrocele ought to be treated other than by injection. The use of tincture of iodine, the simple as well as the compound, is too often followed by failure to urge its use, which is often attended by a scene — patients often fainting, and suffering from griping pains, retraction of the testicle, nausea and even vomiting; unpleasant things to have happen in one's office. Since about six years I have treated all suitable cases of hydrocele by injecting half an ounce of a solution composed of equal parts of carbolic acid, alcohol and glycerine — a small bulb syringe answers very well. A little care is necessary in the use of the solution. Protect the skin surrounding the canula with a little gauze or absorbent cotton, so as to avoid the burning sensation so easily produced on the tender skin covering the scrotum; allow the fluid to remain. The injection is practically painless, and no unpleasant effects follow its use. Patients are allowed to attend to their ordinary business; and in from two to four weeks the acute hydrocele disappears.

I have no record of the number of the cases so treated; but since I have used it, I have seen only one relapse. The method has proved so effective, and with none of the drawbacks of other methods, that I feel warranted in bringing it before the Society. I have never dared to use carbolic acid as recommended by Dr. Levis. I am unable to give the name of the originator.

## Medical Progress.

### RECENT PROGRESS IN OBSTETRICS.

BY EDWARD REYNOLDS, M.D.

#### SINGLE LIGATURE OF THE CORD.

NGUYEN KHAC CAN<sup>1</sup> bases his opinion of the superiority of a single ligature upon his observation that out of 68 cases of labor with double ligature of the cord, there were four cases of retention of the placenta; and out of 146 cases with single ligature, only two cases of retention. The duration of the third stage with the double ligature averaged 64 minutes, while with the single it was but 27 minutes.

<sup>1</sup> Algeria, Arch. de Toc. et de Gyn.