

foot and a thigh, and recovered; and three patients died after amputation of the thigh. The mortality, therefore, after amputation for injury was 10·7 per cent. For disease forty-three amputations were performed, and seven patients died—16·2 per cent. The following table gives the results in a tabular form:—

TABLE I.—Major Amputations treated Antiseptically in the Royal Infirmary, Newcastle-upon-Tyne, during the year 1893.

Seat of amputation.	Injury.			Disease.			Total.
	Number.	Recovered.	Died.	Number.	Recovered.	Died.	
Double amputation ..	3	3	0	0	0	0	3
Hip-joint .. .. .	0	0	0	4	2	2	4
Thigh .. .. .	7	4	3	16	12	4	23
Leg .. .. .	8	8	0	8	8	0	16
Ankle-joint .. ..	2	2	0	11	11	0	13
Shoulder-joint ..	2	2	0	3	2	1	5
Arm .. .. .	3	3	0	1	1	0	4
Forearm .. .. .	3	3	0	0	0	0	3
Total .. .. .	28	25	3	43	36	7	71

EXPLANATION OF DEATHS.

Injury.

1. A boy eight years of age. Died from shock a few hours after primary amputation of the thigh for compound fracture of the thigh and leg.
2. A man twenty years of age. Died from shock a few hours after primary amputation of the thigh for compound fracture of femur into the knee-joint.
3. A lad eighteen years of age. This patient died after secondary amputation of the thigh. He was admitted suffering from traumatic gangrene of the leg of five days' standing, having refused primary amputation outside. He never properly rallied, and died in sixty hours.

Disease.

4. A man sixty-nine years of age. Died from shock sixty hours after amputation of the thigh for spontaneous gangrene of the foot and leg.
5. A man sixty-two years of age. Died from exhaustion three weeks after amputation of the thigh for spontaneous gangrene of foot and leg.
6. A man sixty-two years of age. Died from exhaustion two weeks after amputation of the thigh for spontaneous gangrene of the foot and leg.
7. A man forty-four years of age. Died from shock a few hours after amputation at the hip, performed for tuberculous disease of the hip and knee-joint.
8. A boy eight years of age. Died from shock a few hours after amputation at the hip for tuberculous disease of the hip-joint.
9. A lad sixteen years of age. Died three weeks after amputation of the thigh for suppurating tuberculous disease of the knee-joint from pyæmia. The patient was suffering from pyæmia when admitted into the infirmary and at the time of operation.
10. A man fifty-four years of age. Died two hours after amputation at the shoulder-joint for diffuse cellulitis of the upper arm. He was a chronic drunkard, had albumen in his urine, and was dropsical.

The mortality after amputation during the past year has undoubtedly been high compared with that of many previous years, being 14 per cent. For disease it has been unusually high—16·2 per cent.,—far too high. The mortality following amputation for injury has been considerably lower than that following amputation for disease—10·7 per cent.,—an unusual experience. The nature of the fatal cases fully accounts for the high death-rate. Only one patient died during the year from pyæmia, and he was suffering from pyæmia on admission and at the time of operation. This is the feature of the report to which I wish more particularly to direct attention—the absence of pyæmia as a cause of death after amputation. It is the second year in succession that no death has occurred from blood poisoning in the infirmary after

amputation. Twenty years ago most of the deaths after amputation arose from pyæmia. During 1892 all the deaths after amputation arose from shock. Not one of the patients who died last year after amputation died in consequence of the operation, although death was undoubtedly accelerated, probably in each case. In all the 10 cases death was unavoidable. It was the inevitable result and natural sequence of the condition the patients were in, and from which amputation—the only possible treatment in the judgment of the surgeon—failed to rescue them. In estimating the mortality from amputation in contradistinction to deaths after amputation, deaths from shock occurring a few hours after operation ought, I think, to be excluded, for at present a death from shock is often quite beyond control. The time may come when we shall be better able to prevent death from shock than we are at present; we are certainly better able to avoid the effect of shock now than we were even twenty years ago, or many of the prolonged and serious operations now successfully performed would not be attempted. Pyæmia is preventable and should not arise in a properly equipped and managed hospital. Should, unfortunately, a case of pyæmia arise or be admitted, it is exceedingly difficult to determine what is the best treatment. Even in the old days, when pyæmia was the cause of death in the majority of the cases terminating fatally, I have occasionally seen, after a prolonged illness, patients recover; but I cannot call to mind any case of pyæmia treated by amputation recovering.

TABLE II.—Major Amputations treated Antiseptically in the Royal Infirmary from April 1st, 1878, to Dec. 31st, 1893 (a period of fifteen years and nine months).

Seat of amputation.	Injury.			Disease.			Total.
	Number.	Recovered.	Died.	Number.	Recovered.	Died.	
Double amputations ..	12	7	5	0	0	0	12
Hip-joint .. .. .	6	3	3	23	13	10	29
Thigh .. .. .	57	44	13	173	160	13	230
Knee-joint .. .. .	10	9	1	6	6	0	16
Leg .. .. .	87	76	11	86	84	2	173
Ankle-joint .. ..	27	26	1	129	127	2	156
Shoulder-joint ..	19	18	1	15	14	1	34
Arm .. .. .	47	42	5	22	21	1	69
Forearm .. .. .	43	42	1	35	35	0	78
Wrist .. .. .	7	7	0	0	0	0	7
Total .. .. .	315	274	41	489	460	29	804

It will be noticed that 816 major amputations were performed during the period upon 804 patients, of whom 70 died—8·7 per cent. Forty-one of the deaths followed amputations for injury, 274 patients recovering—a mortality of 13 per cent. Four hundred and eighty-nine of the amputations were for disease, and 29 patients died—a little over 5 per cent. If from the total of 804 patients all were excluded who died in a few hours after amputation, the mortality for the whole period would hardly reach 5 per cent. Saville-place, Newcastle-upon-Tyne.

ON DOUBLE EMPYEMA IN CHILDREN.

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THE subject of double empyema in children is referred to very briefly in most of the leading text-books, although the disease is recognised as a serious one and of not infrequent occurrence. In this paper I shall describe four examples of the affection and then draw some conclusions from an examination of the published cases. The patients were admitted into Paddington-green Children's Hospital—the first three under the care of Dr. Leslie Ogilvie, who kindly

handed them over to me, and the fourth under the care of Dr. Sidney Phillips, to whom I am indebted for permission to record the case. The surgical treatment was carried out by Dr. C. M. McIlwraith and Mr. H. L. Lack, house surgeons to the hospital, to whose careful treatment must be ascribed the good results obtained.

**CASE 1.**—A boy five years of age was admitted to the Paddington-green Children's Hospital on Aug. 30th, 1893. A month previously he had had an attack of pneumonia affecting the left lung, which had never thoroughly cleared up. A week before admission there had been a recurrence of acute symptoms—namely, feverishness, cough, dyspnoea, sweating, and pain in the left side. The boy had never been very robust, and there was a history of four previous attacks of congestion of the lungs. The family history was good. On admission the patient looked ill and was suffering from dyspnoea. He had little or no cough, and complained of no pain. The left side of the chest was retracted and did not expand well. Over the left front there was impaired resonance from the apex to the second rib, and below that marked dulness. The stomach resonance extended as high as the fifth rib. In the axilla and over the left side posteriorly dulness was well marked, with the exception of the apex and a small area along the spine, where some resonance still remained. All over the left lung the breathing was bronchial, and accompanied by crepitations and friction sounds. The right lung presented no abnormal physical signs. Cardiac action was rapid but regular. No distinct apex-beat could be felt, but percussion showed that the area of dulness extended to the right border of the sternum. During the following fortnight the patient's condition continued unsatisfactory. The temperature was elevated, between 100° and 101° F., the respirations were from thirty to forty per minute, and there was a good deal of sweating at night. On the fourteenth day after admission the physical signs over the left lung were as follows: at the upper part the percussion note was tympanitic and the breathing bronchial; over the lower part there was increased dulness on percussion, and the breathing was distant bronchial. Vocal fremitus and vocal resonance were absent in the axilla and around the inferior angle of the scapula. The area of cardiac dulness extended slightly beyond the right border of the sternum. The presence of pus having been proved by means of the exploring needle, on the eighteenth day Dr. McIlwraith resected the left eighth rib in the posterior axillary line. On opening into the pleural cavity no pus escaped, and on introducing the finger soft adhesions were found. These were broken down, and on passing the finger upwards and backwards a cavity was reached from which about five ounces of fluid pus escaped. On free irrigation flaky masses of pus were removed. The lung re-expanded rapidly when the patient coughed. Marked improvement followed this operation, but on the twenty-third day the temperature again rose and continued to be very irregular. The removal of the tube on the thirty-first day led to a further improvement, but this was not maintained. On the fortieth day examination of the right side of the chest showed marked dulness at the base, both anteriorly and posteriorly, with distant bronchial breathing and an absence of vocal fremitus and vocal resonance. Four days later the eighth rib on the right side was resected below the angle of the scapula. About three ounces of pus were evacuated, and numerous soft adhesions were found round the cavity. These were broken down, and more pus escaped, the condition apparently being a loculated empyema. Free hæmorrhage occurred from the breaking down of the adhesions. At the time of the operation the scar on the left side, which had apparently become tuberculous, was dissected out and dressed with iodo-glycerine. The left pleural cavity was not reopened. Rapid improvement followed, and after the removal of the tube on the fifty-sixth day the temperature became normal and continued so. On the sixty-sixth day both wounds were soundly healed, and the patient was discharged ten days later. The pulmonary condition on both sides was good, but there still remained some bronchial breathing at the left apex. He was seen again three months later, and, while no external evidence of the illness existed with the exception of the operation scars, there were some râles at the left apex, and he had a slight cough, with occasional sweating at night.

**CASE 2.**—A girl aged five years was admitted to hospital on July 22nd, 1893. Two months previously she had had an attack of "congestion of the lungs," from which she had never thoroughly recovered. She still suffered from cough, sweating, and loss of appetite, and had been wasting rapidly.

Her previous health had been good, and there was no family history of phthisis or other constitutional disease. The patient on admission was thin and anæmic, with a pasty complexion and slight clubbing of the fingers. Over the right side of the chest there was considerable flattening, and expansion was deficient. No bulging of the intercostal spaces was present. There was a slight spinal curvature in the dorsal region, with the concavity towards the right side. Over the right lung the percussion note was impaired from the apex to the level of the third rib anteriorly, and of the middle of the scapula posteriorly; below that there was absolute dulness. In the upper part the breathing was loud bronchial, with occasional crepitations and bronchophony. In the lower part the breathing was distant bronchial, and vocal resonance was absent. On the left side the pulmonary condition appeared normal. The apex-beat was in the fifth space in the nipple line. On the same day the chest was opened. While the patient was being put under chloroform a small amount of pus, less than a teaspoonful, was coughed up. Dr. McIlwraith resected the sixth rib in the right anterior axillary line, and a considerable amount of fluid pus mixed with some curdy matter was evacuated. The lung was retracted towards the upper and posterior part of the chest, and some adhesions in that region were broken down with the finger, after which the lung expanded up to the opening when the patient coughed. Three days later the tube was left out as the discharge had almost ceased, the temperature was normal, the pulse 80 per minute, and the respirations 24. Five days after admission the temperature rose suddenly to 105° F., and dyspnoea and cough came on, accompanied by expectoration of thick mucoid material, slightly blood-stained. The patient continued acutely ill for the next seven days. During the first five days the temperature remained about 104°, and during the following two days about 103°, except when artificially lowered. No abnormal physical signs were detected on the right side of the chest to account for the patient's condition, and, although the operation wound was frequently dressed and a drainage-tube reintroduced, there was practically no discharge. On the thirteenth day after admission the temperature commenced to fall and soon reached normal. The same day it was noted that there was impaired resonance in the left axilla, and that the breathing there was distant bronchial, with crepitations and rhonchi. From the fifteenth to the thirty-eighth day the patient improved to some extent, but the temperature continued irregular, although never very high. The cough and dyspnoea ceased entirely, but she was breathless on exertion. The abnormal physical signs on the right side of the chest were less marked, while those on the left pointed to an extension of the disease. The dulness in the left axilla had extended to the level of the fifth rib in front and to the mid-scapular line behind. Over this area the breathing was bronchial or tubular, with numerous crepitations, and bronchophony was marked. The heart was regular in its action and normal in position. None of the other organs showed any sign of disease. On the thirty-eighth day the temperature again rose, and during the following fortnight was hectic in type. The only apparent cause was an increase in the intensity and distribution of the physical signs over the left side of the chest. It was resolved to explore the dull area, and a needle was passed into the middle of the left axillary region on the fifty-fifth day, when pus was obtained. Two days later the sixth rib was resected in the mid-axillary line on the left side. On opening the pleural sac a small quantity of pus, thick and gelatinous, was evacuated. This was contained in a cavity which lay between the lobes of the lung. There were firm pleuritic adhesions around the opening. Marked improvement followed the operation, and the pyrexia ceased at once. The subsequent discharge was trifling in amount, and the drainage-tube was removed on the tenth day. Convalescence was interrupted by an attack of otitis, but the patient left the hospital cured on Oct. 19th. The course of this child's illness would appear to have been, first, an attack of pneumonia on the right side followed by empyema, and later an attack of pneumonia deeply seated on the left side, with a subsequent empyema situated between the lobes of the lung.

**CASE 3.**—A boy aged six years was admitted to hospital on May 5th, 1893. A month previously he had had an attack of "congestion of the lungs," the feverish stage lasting for a week. He had never thoroughly recovered, and a troublesome cough remained. His appetite was poor, he had been losing flesh, and there was profuse sweating at night. There

was a somewhat indefinite family history of tuberculous disease. The boy on admission was anæmic and suffered from paroxysmal cough and dyspnoea. Expansion of the chest was deficient on the right side. Over the right side of the chest anteriorly the percussion note was tympanitic from the apex to the fourth rib, and below that there was marked dulness. Bronchial breathing was present over the right front, rather feeble towards the base, and vocal resonance and vocal fremitus were increased. Posteriorly, and in the axilla, there was absolute dulness, and very faint breathing all over with the exception of the apex and a small area along the spine, where a certain amount of resonance remained, with loud breathing and bronchophony. On the left side of the chest expansion was increased and the note was resonant all over. The cardiac apex was in the left nipple line. On May 10th the right pleural cavity was aspirated, but only a small quantity of thick gelatinous pus was obtained. Two days later Dr. McIlwraith resected the seventh rib on the right side below the scapula. At first there was a very slight discharge of pus, but when the patient coughed about ten ounces of fluid pus were quickly expelled and the lung expanded at once up to the opening. On introducing a finger some adhesions were found in the axilla and along the spine, which were broken down. Rapid improvement followed, and the drainage-tube was left out on the fourth day, the discharge being trifling. Convalescence was uninterrupted, and the patient was discharged cured on June 22nd. He continued in good health until Sept. 14th, when he became feverish and complained of pain on the left side of the chest. A medical man was called in who diagnosed acute pneumonia of the left base. A fortnight later the patient came to the hospital and signs of pleural effusion were detected on the left side. As these increased he was readmitted on Oct. 5th. Expansion of the left side of the chest was deficient, and local fremitus was diminished anteriorly and absent posteriorly. The upper part of the left side of the chest gave a tympanitic note on percussion to the level of the third rib in front and of the spine of the scapula behind. Over the rest of that side there was marked dulness, with distant bronchial breathing and ægophony. The right lung presented no abnormal physical signs, and the heart was not apparently displaced. On Oct. 12th Dr. McIlwraith resected the seventh rib in the left posterior axillary line. On opening the pleural cavity some ounces of thick pus mixed with flaky material were evacuated. The cavity was explored, and the lung was found to be retracted upwards and backwards, and adherent to the chest wall. These adhesions were broken down with the finger, and on irrigating the cavity more pus and curdy material were removed. The temperature continued rather hectic for a time, but on the twelfth day after the operation the tube was removed, and the temperature soon became normal and continued so. There remained some flattening of the left side of the chest, but gymnastic exercises were employed regularly, and when the patient left the hospital on Dec. 27th the two sides were symmetrical. The lungs were resonant on percussion, and the only trace of his illness was somewhat harsh breathing over the left side.

CASE 4.—A girl aged two and a half years was admitted to hospital on June 15th, 1891. A fortnight previously she had had an attack of influenza. Four days before admission she became convulsed and continued feverish and drowsy. She was extremely tender to touch all over, and cough and sweating were present. In the family history there was nothing of importance. On admission the child was anæmic and looked ill. The temperature was 100° F., the pulse 130, and the respirations 60 per minute. Over the right lung posteriorly, extending from the spine of the scapula to the base, and in the axillary region, was an area of absolute dulness, where breath sounds and vocal resonance were absent. The percussion note over the rest of the lung was resonant, and occasional crepitations were audible. The left lung was apparently normal, and the heart was not displaced. Pus having been obtained on exploration, the sixth rib on the right side was resected on the following day by Mr. H. L. Lack, and a large quantity of thin greenish pus was evacuated. The lung expanded well, there being no adhesions, and the cavity was thoroughly irrigated with weak sublimate solution. On the following day the amount of pus in the dressings was very small, and the drainage-tube was removed. At the end of a week the progress made was not satisfactory. The respiration continued rapid, and the temperature was high. On June 27th dulness was present at

the left base both anteriorly and posteriorly, with faint tubular breathing. An exploring needle was introduced, and pus was obtained. Resection of the sixth rib in the left mid-axillary line was performed, and a large quantity of curdy pus was removed. Marked improvement followed this operation, and the tube was removed on the third day. Both wounds were still discharging, the right one but slightly, and on July 16th all discharge had ceased. The patient was sent home cured on July 24th.

*Remarks.*—On looking over the literature of double empyema I have found seventeen cases in children and adolescents of which the notes are sufficiently full to be of value for statistical purposes. A synopsis of these cases, and of the four here recorded, will be found in the accompanying table. As regards the etiology, examination shows that fourteen (or 67 per cent.) were secondary to lobar pneumonia, one was preceded by influenza, one by broncho-pneumonia, two are described as primary, and in three the history of previous illness is indefinite. This corresponds very closely with the statistics of unilateral empyema given by Adam,<sup>1</sup> who found that in thirty-two cases twenty-three (or 71 per cent.) were preceded by lobar pneumonia. Hence it may be definitely stated that empyema, single or double, is in most cases secondary to an attack of lobar pneumonia. The accompanying table further shows that pneumonia was ascertained to be present on both sides in eight out of fourteen cases; and as double lobar pneumonia is usually a secondary affection it is possible that influenza may have been a factor in some of the cases. Tuberculosis does not seem to play an important part and is mentioned but once in the above list, where it is stated that pulmonary mischief remained and the scar had become tuberculous. Broncho-pneumonia, although usually bilateral, is given only once as the preceding disease. Two cases are described as primary or idiopathic, but as those terms are now almost discarded in connexion with simple pleural effusion their applicability to empyema is open to grave question.

As regards treatment, aspiration was employed in nine of the cases on thirty-two occasions in all. In one case a cure was effected after the second aspiration, the empyema on the opposite side being treated by incision and drainage. In two of the cases the treatment by aspiration was repeated frequently during a prolonged period owing to the parents' objections to other operative measures. In No. 3 aspiration was performed eleven times in the course of six months, and at the end of that time the patient was in an extremely critical condition, but recovered after the operation of double resection and drainage. In No. 14 aspiration was performed five times in two months, and it was not until pleurotomy with drainage was practised that the patient began to mend. Other cases illustrate the tendency there is to a rapid reaccumulation of fluid after aspiration—for example, No. 12, where, during four days, eight pints of pus were removed in the course of five aspirations. It is evident that, while this method of treatment may be employed as a preliminary measure, in few cases will the relief be permanent, while repeated aspiration is useless and only endangers the patient's chance of a complete recovery.

The more thorough treatment by making a free opening in the chest-wall and draining the abscess cavity has been found the more successful in cases of double empyema. In this country resection with drainage seems to be preferred, while in America and Germany incision with drainage is more common. From the accompanying table it will be seen that resection was performed on twenty-two occasions—ten times on both sides, and twice on one side only; while incision was practised on eighteen occasions—eight times on both sides, and twice on one side only. Irrigation was employed in several of the cases, in some at the time of the operation only, and in others at the subsequent dressings also. This latter proceeding is usually considered unnecessary, except in septic cases. The interval between the operations was in one case two days, in two cases four days, in one case five days, in two cases seven days, and in all the others more than a week had elapsed before the second empyema was opened. A considerable amount of shock frequently followed the evacuation of the abscess, in some cases more marked after the first, and in others after the second operation. The exact length of time during which the drainage-tube remains in the chest is of importance, because the longer the wound remains open the less prospect is there of a complete restoration of the lung and chest-wall.

<sup>1</sup> Archiv f. Kinderheilkunde, Band xv., Hefte v. und vi.

to normal action and form. In the accompanying table, of the first seventeen cases the exact duration of drainage is stated in fourteen (or twenty-eight operations), and was on an average seven weeks, while in the last four cases (or eight operations) it was seven days. The results of treatment, there being but one death out of twenty-one cases, are very satisfactory, but do not probably represent the ordinary mortality, as the table is composed chiefly of isolated and selected examples of double empyema.

In conclusion, I wish to direct attention to some points in the management of this affection. The chief problem presenting itself in the treatment of double empyema has been as to how respiration can be carried on if a free opening into both pleural cavities is present. Mr. Godlee has stated that "if a general empyema has been opened and another form on the opposite side, it is obvious that the only surgical treatment for the second collection is by aspiration."<sup>2</sup> On the other hand, it is asserted by Dr. Coupland and Mr. Gould that "to open a double empyema cannot lead to collapse of lung, and is sure to be quickly followed by more or less expansion

double empyema there is a necessity for having a drainage-tube in both pleural cavities at the same time. I do not believe that any treatment is so satisfactory and so speedy as that of resection. If at the time of the operation the boundaries of the abscess are explored and all loose adhesions broken down the chief cause of non-expansion of the lung is done away with. This is tested by making the patient cough, when the lung, if not tied down, will be quickly expanded by air driven into it from the opposite lung. If, in addition, the pleural cavity is carefully and thoroughly irrigated, and all pus whether fluid or solid evacuated, the chief source of pleural irritation is removed. A short drainage-tube should then be introduced, and it can, as a rule, be taken out during the first week. My reasons for this line of treatment have been given fully in a previous paper,<sup>4</sup> and need not be repeated here. In support of this practice of temporary drainage I may direct attention to the above four cases described in full, in which the average duration of drainage was seven days, as contrasted with seven weeks in the cases published by other writers. The advantage to the patient will probably be at once admitted,

TABLE OF TWENTY-ONE CASES OF DOUBLE EMPYEMA.

No.	Reference.	Age.	Sex.	Preceding disease.	Treatment.	Duration of drainage.	Result.
1	Bristol Med. Chir. Journal, December, 1893 (W. J. Fyffe).	17	M.	Double pleuro-pneumonia.	Double incision and drainage.	Right, 5½ weeks; left, 4 weeks.	Cure.
2	THE LANCET, July 19th, 1890 (Morgan and Bruce).	6	M.	Pneumonia.	Aspiration (four times); later, double resection and drainage.	Right, 5 weeks; left, 4 weeks.	Cure.
3	Clin. Soc. Trans., vol. xxiv. (Coupland and Gould).	7	F.	Double pleuro-pneumonia.	Aspiration (eleven times); later, double resection, irrigation, and drainage.	Right, 5 weeks; left, 6 weeks.	Cure.
4	THE LANCET, June 11th, 1892 (Deanesly).	10	F.	Pneumonia.	Aspiration (twice); later, double resection and drainage.	—	Cure.
5	Ibid.	1½	—	Indefinite.	Single resection and drainage.	—	Sudden death 12 days later.
6	THE LANCET, July 21st, 1888 (Blunt and Okell).	5	M.	Pain on both sides of chest.	Right, resection and drainage; left, incision and drainage.	Right, 7 weeks; left, 4 weeks.	Cure.
7	Clin. Soc. Trans., vol. xxvi. (Carr).	7	M.	Double pneumonia.	Aspiration (once); double resection and drainage.	Right, 8 weeks; left, 10 weeks.	Cure.
8	THE LANCET, June 20th, 1891 (Handford).	7½	M.	Pneumonia.	Double resection and drainage.	Right, 9 weeks; left, 9 weeks.	Cure.
9	Archiv. of Pædiat., vol. vi. (Huber).	13	M.	Double pleuro-pneumonia.	Aspiration (once); double incision, irrigation, and drainage.	Right, 5 weeks; left, 5 weeks.	Cure.
10	Ibid.	5½	—	Double pleuro-pneumonia.	Double incision, irrigation, and drainage.	Right, 4 weeks; left, 4 weeks.	Cure.
11	Ibid., vol. ix. (Huber).	6	M.	Right lobar pneumonia.	Double incision, irrigation, and drainage.	Right, 8 weeks; left, 8 weeks.	Cure.
12	New York Med. Record, vol. xxxiv. (Gardiner).	15	M.	None.	Aspiration (five times); later, double incision and drainage.	Right, 8 weeks; left, 7 weeks.	Cure.
13	THE LANCET, Oct. 16th, 1880. (Sangster).	2	M.	Broncho-pneumonia.	Right, incision and drainage; left, aspiration (twice).	—	Cure.
14	New York Med. Journ., vol. lii. (Westbrock).	4	F.	Right lobar pneumonia.	Right, incision and drainage; left, aspiration (five times); later, incision and drainage.	Right, 12 weeks; left, 7 weeks.	Cure.
15	Oertl. Intell. Münch., 1883 (Brauser).	3	M.	Scarlet fever and double pneumonia.	Double incision, irrigation, and drainage.	Right, 7 weeks; left, 7 weeks.	Cure.
16	Anna's of Surg., 1893. (Warbasse).	10	F.	None.	Double resection, irrigation and drainage.	Right, 17 days; left, 17 days.	Cure.
17	Liverp. Med. Chir. Journal, 1893 (Marsh).	8	M.	Indefinite.	Right, incision and drainage; left, aspiration (once); later, incision and drainage.	Right, 8 weeks; left, 15 weeks.	Cure.
18	THE LANCET (vid. sup.).	5	M.	Lobar pneumonia.	Double resection, irrigation, and drainage.	Right, 12 days; left, 13 days.	Cure.
19	Ibid.	5½	F.	Double lobar pneumonia.	Double resection, irrigation, and drainage.	Right, 3 days; left, 10 days.	Cure.
20	Ibid.	6	M.	Double lobar pneumonia.	Double resection, irrigation, and drainage.	Right, 4 days; left, 12 days.	Cure.
21	Ibid.	2½	F.	Influenza.	Double resection, irrigation, and drainage.	Right, 1 day; left, 3 days.	Cure.

of lung,"<sup>3</sup> and they base this statement on the fact that adhesions are always present and prevent any further collapse, or, in other words, that such a condition as a general empyema does not exist. It is, however, no very uncommon thing to see a general empyema either during life or on the post-mortem room table; and, even admitting that adhesions are commonly present, it must be remembered that the lung has usually retracted towards the mediastinum and spinal hollow and away from the diaphragm and the most movable parts of the ribs. In other words, the lung is removed from the forces which take an active part normally in its expansion, and the adhesions present will not tend in any way to its re-expansion. In the case of small and localised empyemata I think the statement of Dr. Coupland and Mr. Gould will certainly apply, but these are extremely difficult to diagnose with certainty until they have been opened, so that Mr. Godlee's advice is probably safer and more general in application. It is further a question whether in any case of

but what I wish specially to note is its bearing on cases of double empyema, where, if one side is speedily cured, the other side can then be treated without danger in the same radical manner, aspiration having been performed, if necessary, in the meantime, as recommended by Mr. Godlee. Some special precautions are certainly necessary; for in the reported cases of "simultaneous drainage" the amount of collapse has frequently been alarming, and the signs of cardiac and respiratory embarrassment very marked. As regards the side of the chest to be operated on first in cases of double empyema the greatest relief will probably be obtained by selecting the side on which there appears to be the largest amount of fluid. After the operation wounds have healed an important part of the treatment is the employment of forced respiratory movements and chest-expanding exercises, so as to maintain full expansion of the lungs and prevent any falling in of the thoracic walls.

Carlton-hill, N.W.

<sup>2</sup> Heath's Dictionary of Surgery: Art., "Empyema."

<sup>3</sup> Transactions of the Clinical Society, vol. xxiv., p. 82.

<sup>4</sup> The Treatment of Empyema. THE LANCET, Jan. 27th, 1894.



## CASE OF CONGENITAL SYPHILIS; INFECTION OF THE MOTHER BY HER OWN CHILD.

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WHATEVER differences of opinion may arise as to the inferences to be drawn from the particulars of the case about to be related, it seems to me an important one and well worthy of being placed on record. In an experience of nearly two thousand cases of congenital syphilis, gained during the last ten years at the Shadwell Children's Hospital, a similar one has never presented itself to me, although I have been keenly on the alert for such. With this testimony to its rarity at least, I place before the readers of THE LANCET the following notes, after having, for the sake of brevity, eliminated all that seemed to me inessential or as having little bearing upon the point at issue.

An infant aged eight months was first seen by me at the Shadwell Children's Hospital on Nov. 7th, 1892. For a fortnight previously she had been treated by Mr. Cursham Corner for congenital syphilis and was by him transferred to my care. The father and mother had been married for ten years and had five children. The four eldest were all living and were healthy, and, as far as could be gathered, there had been no snuffles or rash or any syphilitic manifestation in any of them. The father came to see me at the hospital. Although divining the cause of my sending for him, his manner was open and straightforward, and what he stated inspired confidence. Before marriage he had been with "loose women." His fallings from virtue, however, had been but seldom, perhaps numbering half a dozen altogether, and since his marriage he had kept perfectly "straight." He had never to his knowledge had any venereal complaint and on examination presented no outward manifestation of syphilis. There was also an entire lack of any specific taint in the history of the mother. The infant was born at full time and was seemingly healthy; it had never seemed, however, as strong as any of the other four. At three weeks of age it had snuffles, and simultaneously with this, or very shortly after, a slight red rash on the buttocks. The rash only lasted a week or so, but the snuffles persisted for some weeks longer. The illness altogether was so slight that the mother did not seek medical advice for it. At ten weeks of age the child was vaccinated, and there had never been, nor is there now, in the scars anything unusual about the vaccination punctures. Lymph had not been drawn off from the vesicles by the surgeon who operated. With the exception of the slight rash at three weeks of age there had been no sore about the child—on this point the mother was absolutely positive—until the present illness. This commenced about the beginning of September with a "cold in the head," followed in a short time by sores on the buttocks and mouth. The child presented the typical aspect of congenital syphilis. There was marked snuffling, with nasal discharge, and some crusting of the inner surfaces of the nose. The upper lip was stained and excoriated by the nasal discharge. There were a few crusts on the surfaces of both lips, with marked vertical fissuring of these last, and the angles of the mouth were prolonged into ulcerous cracks. The inner surfaces of the lips and buccal membranes were affected with some slight superficial ulceration, and there was a small ulcer on the tongue, and there were what were seemingly mucous plaques on the soft palate. The posterior cervical glands were slightly enlarged, and there was a doubtful patch of cranio-tabes over both occipital bones. The skin was muddy-looking and inelastic. Over the buttocks was a sparse, rusty-coloured, scaly eruption, with infiltration of the skin involved, and in one or two places evidence of past and present ulceration. Around the anus were some slightly raised mucous tubercles. The spleen and liver were both enlarged, and the child was somewhat wasted, this last condition having been intensified during the current illness. About a week after the child's mouth and lips became affected, the mother, who had continued to suckle the infant, noticed two small sores about the right breast nipple. These had increased gradually in size until, on my seeing them for the first time on Nov. 7th, the larger of the two had gained the diameter of a sixpenny piece. This last was situated above the nipple, and the smaller one just below this last and externally to it. Both sores presented the

characters of shallow ulcers on the surface of the areola of the nipple, and the larger one encroached slightly on the skin beyond. They were hard and firm to the touch, with well-defined borders, which felt of a somewhat cartilaginous consistency and could be well isolated from the surrounding breast structures. The glands in the right axilla were enlarged. There was complaint of sore-throat, and on examination the pharynx and tonsils were found to be injected and the sites of some slight shallow ulceration. To me there seemed to be a faint roseola over the chest, but neither skin nor throat presented anything that was definitely distinctive.

A fortnight later all the symptoms were intensified. The sores on the breast had increased in diameter. The border of the upper and larger one seemed slightly raised by epithelial overgrowth, and this led to an appearance of deeper cupping over it than was really present. The surface was kept moist by a thin, scanty, serous secretion, and the same sharp demarcation from the surrounding tissues was as marked as before. The throat was now the seat of a marked and typical syphilitic ulceration, and there was a deep ulcer along the right margin of the tongue. The body and flexor surfaces of the limbs were now covered with a profuse, rusty-coloured, coarse eruption, unmistakably specific. There had been marked loss of hair and severe periosteal pains in spite of the iodide of potassium, which had been administered with mercury for the past fortnight. My colleague, Dr. H. B. Donkin, and the resident medical officer, Dr. E. E. Ware, were kind enough to see the patients along with me at this visit. They both unhesitatingly agreed that the infant presented all the usual signs of congenital syphilis, that the throat and rash of the mother were undoubtedly syphilitic, and that the lesions on the breast presented the characteristics appertaining to primary sores.

I saw no more of the cases until Jan. 16th, 1893, when the mother attended again with the child, in response to a letter from the out-patient sister. The child had much improved, but there was still snuffling and staining of the upper lip and chin and there were some mucous tubercles around the anus. The mother, in the interim, had been very ill and obliged to take to her bed for some time. Periosteal pains and sore-throat had been very severe, and there had been much general disturbance of health. Nearly all her hair had now come off. The sores about the nipple had by this time healed up. The lower one had disappeared, but could still be felt as a small cicatrix under the skin. The upper one had much diminished in size, but was apparent as a small mass of scar tissue, flush with the surface of the breast, glistening and somewhat puckered on its exterior, and could be sharply defined from the underlying structures. The rash was disappearing, and some of its former sites were marked by dusky pigmentation. There was still ulceration of the fauces and tongue, and the posterior cervical glands were distinctly enlarged.

Such are the details of what to me is a most interesting case. In view of the importance of the issues it may call up and of the controversy it may excite against my opinions regarding it, I have felt compelled to give at some length the particulars which went to prove that the infant was the subject of inherited syphilis, and the mother that of a primary and acquired one. That exception may be taken to my views of the case I am, of course, fully aware. What cannot be gainsaid, however, is that the infant early in life had suffered from what was apparently a mild attack of congenital syphilis, followed at the age of six months by further manifestations of what, by every criterion we possess, was a relapse of the same complaint of a severer nature than the first attack. Equally certain, too, was it that the mother acquired what were seemingly primary chancres in the breast soon after the appearance of the sores on the infant's mouth, followed in the course of seven weeks or so by unmistakable signs of secondary syphilis. The infant and mother were seen by three other observers who had all had unusual and great experience in both the congenital and acquired forms of syphilis, and when their opinions on the cases fully coincide with that of my own the facts that the infant seemingly suffered from inherited and the mother from primary and secondary syphilis are not to be lightly controverted, whatever construction or explanation others may place upon them. I at once admit that weak points in my case are the absence of any proof of syphilis as regards the father, and the facts of the mother having given birth to four healthy children previously to the patient and having had no miscarriages. The father, however, although he did not consider himself to have ever been the victim of venereal complaint, had in former years placed himself in the way of