In this case also we had the benefit of Colonel Sylvester's advice. He thought it was one of aneurysmal varix, and agreed that at present, at any rate, there is no call for an operation. The patient was under the care of Lieutenant T. Geddie, R.A.M.C., with whom I saw him. The variation in pulsation and thrill with change in posture suggests that there may be local dilatation of the artery from injury to its wall, and thus pressure on the vein rather than actual communication between the two, though the latter is more probable. Time will probably clear up the doubt. The pain is most likely due to injury to one of the nerves by the shrapnel. At the end of September all the pain had ceased, but the bruit was more loudly to be heard all over the upper part of the chest, and in the neck and even down the arm. Pulsation in the neck just above the clavicle was more distinct, but the thrill varied and was sometimes absent. The man could use the arm freely and felt little if any discomfort.

I am indebted to Colonel S. C. B. Robinson, A.M.S., officer commanding Queen Mary's Military Hospital here, for permission to publish these two examples.

THE DIAGNOSIS AND TREATMENT OF MEDIASTINAL PLEURISY.

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MEDIASTINAL pleurisy is a rare affection; I have met with but few instances of the kind in my medical career, and in every one the diagnosis has been a matter of difficulty. Nevertheless, I was enabled to recognise the nature of the case, thanks to the teaching of my regretted chief, Professor Dieulafoy, who thoroughly elucidated the question upwards of 15 years ago.¹ To arrive at a diagnosis in a case of mediastinal pleurisy, the first thing is that it shall cross our minds, and this it is likely to do only when the case before us displays the typical symptoms of the disease. The clinical picture was almost diagrammatic in its clearness in the last case that came under my notice, so I will briefly relate the history.

The patient was a man, 62 years of age, who in February last was suddenly seized with shivering and oppression, his temperature running up to 39.8° C. The most careful examination of the chest failed, for several days, to reveal the least pleuro-pulmonary sign. On the eighth day, the temperature being still high, percussion over the back of the chest caused him some pain. On the twelfth day the pain became limited to the left costo-vertebral fossa, opposite the third and fourth dorsal vertebræ. There was an area of partial dullness on percussion the size of a crown piece, and on auscultation one heard a distant, blowing sound on expiration. It occurred to me that it might be a localised pleural effusion, but exploratory puncture with a needle four centimetres in length proved negative. On the fifteenth day other signs supervened which at once led me to suspect inflammation of the mediastinal pleura. To begin with, there was a dry, paroxysmal cough of the pertussis type. Then the voice underwent a change, from clear it became harsh, muffled, obscure. Respiration, which had been noiseless, could now be heard at a distance and became snoring, in fact almost amphoric. Lastly, swallowing became difficult, solids especially not passing easily. This group of symptoms strikingly corresponded to Dieulafoy's

mediastinal syndrome and the diagnosis of mediastinal pleurisy seemed to be certain. This, however, had to be verified by laboratory means. To begin with, the patient was skiagraphed. On the screen, in the front anterior position, we could see quite clearly a widening of the normal supracardiac shadow. In the left front posterior position a widening was seen, rather to the left, but in the left posterior oblique position the mediastinum was seen to be filled with a dark, non-pulsating mass. I administered a cachet of bismuth, which remained suspended for ten seconds before passing from the œsophagus into the stomach. We therefore diagnosed a tumour of the posterior mediastinum pressing upon the trachea, the nerves, and the œsophagus. The sharp outlines of the skiagraphic image, a certain mobility of the image on changing the patient's attitude, led us to suppose that it was a liquid tumour. Now as to the nature of the liquid, Was it serous, purulent, or hæmorrhagic? Clinically it was impossible to say, but examination of the blood showed 4,500,000 red and 10,900 white corpuscles. This hyperleucocytosis militated in favour of the effusion being purulent and so did the high temperature. Was it due to the pneumococcus, the staphylococcus, &c? The sudden onset and the maintenance of a high temperature morning and evening could hardly fail to suggest to us the probability of its being a pneumococcal infection. The diagnosis of purulent pleurisy of the posterior mediastinum, of course, entails a gloomy prognosis on account of the probable progressive increase of intrathoracic pressure, the possibility of the effusion opening into one of the big mediastinal vessels and, more particularly, by reason of the difficulty of surgical intervention in this region.

By way of treatment I ordered intramuscular injections of lantol (small-grained electric rhodium), quinine, cachets of suprarenal and pituitary extract, and mild counter-irritation of the back of the chest by means of dry cupping. In presence of the persistence of pressure symptoms, the high temperature, and the depreciation of the general health, I was beginning to seriously consider the desirability of surgical intervention when, on the twentieth day, after a violent attack of coughing, the patient began to bring up purulent sputum, without any disagreeable odour, but thick and sticky. In the course of a few hours he spat up 300 grammes of expectoration. Bacteriological examination of the sputum showed the presence of an almost pure culture of pneumococcus. The temperature at once fell to 38° C., the paroxysmal cough subsided, and the pressure symptoms disappeared. I gave him daily subcutaneous injections of gomenol (5 per cent.), and in the course of another fortnight the expectoration ceased entirely, the temperature returned to normal, and he became convalescent. Recovery was completed by residence on the shore of the Mediterranean.

In this case of encysted purulent pleurisy of the posterior mediastinum the diagnosis was comparatively easy, simply because the possibility of its being such a case was present in my mind, skiagraphy having merely confirmed and rendered certain the diagnosis.

The diagnosis of mediastinal pleurisy can be arrived at on a reasoned practical basis if we carry out seriatim the following examinations. In the course of an acute febrile affection any sign of compression within the mediastinum should lead us to entertain the idea of a solid or liquid tumour in this region. This will also occur to us even more markedly when the mediastinal syndrome is complete. I may recall that this syndrome, due to compression of the trachea, the œsophagus, the nerve trunks, the vessels, &c., is manifested by attacks of suffocation, retraction, amphoric breathing, paroxysmal cough, disturbances of the voice and of the complementary thoracic circulation. Directly we find ourselves in presence of this syndrome the patient must forthwith be examined by the aid of the X rays. Stereographic skiagraphy is particularly useful in such cases. Changes in the voice necessitate examination of the larynx with the laryngoscope. Bronchoscopic examination is indicated in

¹ Dieulafoy: Clinique Médicale de l'Hôtel Dieu de Paris, vol. iii., 1889-99, p. 23.

presence of amphoric breathing because it yields very valuable information, as I have found in several cases of broncho-oesophageal cancer with neoplastic adenopathies in which it has enabled me to arrive at an early diagnosis.

These various items of information will enable us to conclude in favour of the existence of a tumour in the anterior or posterior mediastinum, the latter being of much more frequent occurrence than the former, and to assert that this tumour is, or is not, pulsatile. This will suggest or discard the possibility of the tumour being aneurysmal. In some instances, as in the one mentioned above, X ray examination may yield information as to whether the tumour is liquid or solid.

If we are enabled to decide that the tumour is liquid it behoves us to try to ascertain whether it is serous, hæmorrhagic, or purulent. Exploratory puncture will be necessary in the dull area that will have been outlined in one of the vertebral fossæ. If the needle, pushed in as deeply as possible in the dull area, fails to strike fluid, examination of the blood, should it show hyperleucocytosis, especially of the polynuclear variety, may afford useful information from this point of view. Liquid tumours of the mediastinum may be pleural or extrapleural, and the diagnosis between the two is often a matter of some difficulty. There are abscesses of the mediastinum in connexion with cancer of the œsophagus and, probably more frequently than one is apt to suppose, we get dermoid cysts of the mediastinum that may suppurate.

Some eight years since, in a young woman 22 years of age, I came across a dermoid cyst of the whole mediastinum but the exact diagnosis only became possible post mortem. The affection was characterised by high temperature, severe dyspnoea, a paroxysmal cough, slight difficulty in swallowing, tachycardia, and dullness at the base of the right lung. An exploratory puncture in that area gave issue to a greenish fluid containing yellowish grumous fatty material which, under the microscope, was seen to be composed of amorphous matter. Skiagraphy showed both apices to be clear and both bases obscure, especially on the right. I diagnosed interlobar pleurisy or a mediastinal collection of unknown nature and had the patient operated. An incision into the eighth intercostal space on the right side behind gave issue to a quantity of serous fluid mixed with yellowish grumous matter. On introducing the finger into the cavity it withdrew a lot of sebaceous matter. The dyspnoea did not diminish and the patient died three days later when, to our surprise, we found an enormous dermoid cyst of the mediastinum, weighing 13 kilogrammes, with numerous pouches, two of which were suppurating. Most of them contained a mixture of sebaceous matter and greenish fluid, with a few bristles; two of them contained a semen-like fluid; one big pouch in front was filled with very thick sebaceous matter, with a lot of long fine black hairs, cartilaginous nodules, plates of bone, and fatty nodules.

I have dwelt at some length on this case in order to show the difficulty of diagnosis when we are called upon to differentiate these dermoid cysts from mediastinal pleurisy, especially when one or more of the pouches happen to suppurate. Nevertheless, in this case I think I ought to have made the diagnosis, and doubtless should have done so had I given due consideration to the presence of the fatty matter floating in the greenish liquid withdrawn by the exploratory puncture.

The treatment of mediastinal pleurisy is difficult to lay down on general lines because it varies according to individual circumstances. The administration of 5 to 10 centigrammes of suprarenal and pituitary powder, intravenous or intramuscular

injections of lantol (electric colloidal rhodium), or electrargol, may render great assistance in combating the infection. When we feel pretty certain that we are in presence of an encysted purulent effusion in the mediastinum, the question of operative intervention will have to be adjudicated upon. In spite of the difficulty and risk of the operation we have no alternative when the temperature remains high, when pressure effects produce an intense mediastinal syndrome, and especially when, by the twentieth day, nothing has been coughed up.

Should pus be coughed up, usually in small quantities, we must try to facilitate expectoration by means of ipecacuanha or by injections of emetine, and we may try to disinfect the abscess cavity by means of injections of gomenol. Lastly, in cases where the cavity empties itself imperfectly, bronchoscopy may enable us to act directly thereupon by introducing an antiseptic fluid into the cavity, as is done in pulmonary cavities by Dr. Guisez and Dr. Stodel. Constitutional measures by the open-air treatment and the administration of tonics will complete the local treatment.

CLINICAL RESULTS OF 1,000 INTRAVENOUS INJECTIONS OF GALYL.

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IN this paper I desire to record experiences in connexion with the administration of one of the newer specific remedies, galy, in a series consisting of somewhat over 1,000 consecutive intravenous injections, given principally at the London Male Lock Hospital in the period from June to November, 1915, inclusive. My remarks will be confined to clinical observations only, no systematic study having been undertaken of the effect on the Wassermann reaction or of certain other questions chiefly of academic interest.

Galy, or tetraoxydiphosphaminodiarsenobenzene, is one of several synthetic substitutes for salvarsan which have recently appeared on the market. It is the invention of a French scientist, M. Mouneyrat, and while it is a substance with a high arsenic content (35.3 per cent.), it possesses some claim to originality in that it contains in its formula the element phosphorus (equal to 7.2 per cent.), while the atoms of arsenic are graphically represented as differently grouped. A comparison of the full doses advised for galy and for salvarsan and neosalvarsan indicates that galy as administered actually contains only about half as much arsenic as the others, a point of passing interest in view of the recent suggestion that the activity of these agents may be not wholly dependent on the arsenic moiety. In the leaflet which accompanies the preparation the assertion is made that it has the advantage over the other arsenic derivatives of being non-toxic to nerve tissue.

The preparation is supplied in five different strengths—viz., 0.4 grm., stated to be the full dose and to correspond to 0.9 neosalvarsan; three smaller, 0.25, 0.30, and 0.35 grm.; and a larger, 0.5 grm. It is left to be inferred that the large dose is to be used only very occasionally, or in other words that it is a specially powerful one. I may say, however, that during a recent temporary shortage of galy I was supplied with several 0.5 grm. tubes and used them in place of the 0.4's with indistinguishable results.