years. The surgeon who brought the lady to me had a very good case of instruments, and as he undertook, with Dr. Grabham, the charge of the patient after operation, I was able (although I had not extracted a cataract for about twenty years) to remove both lenses, and thus save this old lady the voyage to Lisbon; and I have lately heard from Dr. Grabham that the result of the operation has been quite successful.

CASE OF RUPTURE OF THE HEART FROM EXTERNAL VIOLENCE, WITHOUT PENETRATING WOUND.

By HENRY HANDFORD, M.B. Edin., M.R.C.S. Eng.,
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ON Saturday, November 1st, a man, A. B., aged about 35, was brought to the General Hospital, Nottingham. A wheel of a light cart (empty) had passed over his chest. According to the statements of the men who witnessed the accident, he never spoke or moved after the receipt of the injury, but continued to make a moaning noise for a few minutes. When he was brought to the hospital, about ten minutes later, he was quite dead.

Post Mortem Examination, forty hours after death.—The body was well nourished; height about 5 feet 8 inches; muscular. Rigor mortis was very strongly marked. There was an incised wound about an inch long on the back of the head, and numerous syphilitic sores and scars on the penis, scrotum, and thighs. (He had been an in-patient of the hospital some months previously for syphilis.) *There was no trace of any wound or contusion on the chest, nor were any of the ribs broken.* On examination of the thorax, the pericardium was found much distended; and, on opening it, about eight or ten ounces of serum and imperfectly coagulated blood escaped. While examining the heart *in situ*, a rupture about three-fourths of an inch long was discovered on the posterior wall of the left auricle. The aorta was distinctly atheromatous; and there was thickening of the mitral, and less so of the aortic and tricuspid valves. The endocardium lining the left auricle was markedly thickened in irregular patches, and of an opaque yellowish colour. The muscular fibres of the left auricle, taken from the immediate neighbourhood of the rupture, showed, under the microscope, well-marked pigmentary degeneration; *i.e.*, an accumulation of pigment-granules arranged more or less in rows in the region of the nucleus; but no distinct trace of fatty degeneration, though the fibres were not well striated. The weight of the heart was eleven ounces and three-quarters. The lungs were engorged. The spleen was soft and large, and weighed eight ounces. The other organs were healthy. On examining the brain, a patch of yellow softening was discovered at the apex of the temporo-sphenoidal lobe. The contents showed, under the microscope, numerous oil-globules, compound granular corpuscles, and a quantity of amorphous granular pigment. There was no trace of injury to the brain or membranes corresponding to the scalp-wound in the occipital region.

REMARKS.—Wounds of the heart, arising from any cause, are not common; but, of all injuries, rupture from mechanical violence is the least common, as may be seen from the table given by Herr George Fischer (*Archiv für Klinische Chirurgie*, Band ix, Heft 3) in which, out of 452 cases, there were wounds from pointed instruments, 44; from pointed and cutting instruments, 260; from firearms, 72; *injuries from crushing*, 7; (spontaneous?) rupture, 69.

The cause of the rupture in this case was evidently compression of the chest-wall and of the contents of the thorax by the wheel of the cart; the heart giving way at its weakest part—*viz.*, the left auricle; that part being actually one of the weakest spots, and relatively the weakest, because it is the part of the heart which would be least supported by surrounding structures in the case of compression. The right auricle is more nearly in contact with the chest-wall, and would gain support from it; and, besides, it has an important safety-valve in the openings of the two great veins—the *venæ cavæ*—into it. When the distended auricle felt the effects of the pressure on the chest-wall, the contained blood would be unable to flow onwards into the ventricle, as the cavity of that would be kept closed by the same pressure; but it would have comparatively little difficulty in passing back again into the *vena cava inferior*, and so into the abdomen, which was free from pressure. In the case of the left auricle, it gains little support from the adjacent inner surface and root of the lung; and it has no safety-valve, inasmuch as the blood cannot escape into the ventricle, for the same reason as before; neither can it pass back into the pulmonary veins, because the lungs themselves are equally exposed to the pressure which would tend to drive the blood in the pulmonary veins onward into the auricle, and so further distend it.

I have taken no account of the muscular action of the heart itself, because it would be quite inconsiderable, when compared with the immense external force which must be exerted to cause such a lesion as the above.

The above theories may, perhaps, serve to explain the observed fact that, in ruptures from violence, the left auricle is most frequently affected; whereas in spontaneous rupture the left ventricle is by far the most common seat of injury. Thus, in five cases mentioned by Dr. Payne (Jones and Sieveking's *Pathological Anatomy*, p. 332), in which there was rupture of the heart from mechanical injury without penetrating wound, the left auricle was affected in three cases, the left ventricle in one, and the right ventricle in one. In spontaneous rupture, on the contrary, in one hundred cases tabulated by Dr. Quain (*Lancet*, April 6th, 1872), the left ventricle was ruptured seventy-six times; the right ventricle thirteen times; the right auricle seven times; the *left auricle twice*: the septum four times.

In spontaneous rupture, the coexistence of fatty degeneration of the muscular fibres is almost a *sine quâ non*. In rupture from violence, this is not necessary, and, indeed, it is usually not present; but, undoubtedly, the production of a rupture would be facilitated by it; and in the present case, I think, both from the appearance of the muscular fibres under the microscope and from the general state of the valves and endocardium, as well as from the consideration that the man was saturated with syphilis and had a patch of softening in the brain, that the muscular substance of the heart was far from being in a high state of nutrition and tone, and that the rupture was much facilitated thereby.

Death probably took place from compression of the heart by the blood effused into the pericardial sac; and the extreme rapidity of the death may, perhaps, account for the absence of marks of bruising on the skin of the chest.

A case somewhat similar to the above has been recorded, where a boy sustained a rupture of the septum ventriculorum from a kick from a horse, without apparent injury to the chest-wall.

A CASE OF ACUTE PHTHISIS FROM DIRECT CONTAGION IN A DOG.

By D. H. CULLIMORE, M.K.Q.C.P.

HAVING read with great interest the remarks on Tuberculosis as a Contagious Disease in the *JOURNAL* of May 8th, I send the following case, which contains many points bearing on this subject.

About six years ago, when I was acting as Residency Surgeon at Mandalay, a Bengalee servant, suffering from advanced pulmonary consumption, with copious expectoration, came under my notice. One of my dogs—a pariah—developing his natural talents as a scavenger, was, as I afterwards learned, in the habit of frequently visiting the house of the sick man, and lapping up the expectorated matter. How long this had been going on I cannot with certainty say; but a few days after the death of the man the dog appeared out of sorts, refused his food, rapidly emaciated, had a cough which increased quickly in severity, and was attended later on with a tenacious and glairy discharge from the mouth and nose. The stethoscope detected moist *râles* with rhonchus and sibilus over a greater part of the chest. These symptoms continued to grow worse for a week or ten days, when convulsive fits of about five minutes' duration, and occurring several times in the course of the day, made their appearance. These fits were of an epileptiform or tetanic character. The poor animal moaned a good deal and appeared in great pain, as he lay on his back reeling and kicking about. On the second day from the commencement of the fits, and about the twelfth from the beginning of the disease, there being but little hope of recovery, a large dose of prussic acid was given, which speedily proved fatal.

The *post mortem* inspection was limited to the contents of the skull and the chest, as these were the parts supposed to be more prominently diseased, and in both were found lesions to account for the symptoms during life, and their probable cause. Both pleuræ were adherent, the adhesions being recent; and the lungs were studded with softened patches, in varying stages of caseous degeneration, many of them containing muco-purulent matter, with which the minute and larger bronchi were also clogged. I did not notice the state of the bronchial glands. The brain did not show much signs of disease, and nothing similar to what existed in the lung. The membranes appeared thickened and congested, and on cutting them a good deal of serum exuded; there were no tubercular or cheesy deposits; the whole mass was uniform, and appeared softish, but I had no previous experience of the canine brain, and cannot speak with certainty.