CYSTS OF THE ADRENAL GLAND

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Cysts of the adrenal gland are extremely uncommon and despite diligent search in the literature, only fifty recorded cases have been found. Some of the cysts have been of clinical significance but many have been discovered accidentally during the course of a laparotomy for some unrelated condition or at autopsy. Relatively few have been removed surgically and in only one instance has a correct pre-operative diagnosis been made. (Levison 1933.)

The first recorded case is that of Greiselsius of Vienna in 1670 (Doran 1907). At a routine autopsy a very large cystic swelling was found apparently arising above the upper pole of the left kidney. The cyst had ruptured and more than a gallon of blood-stained fluid and clot was found free within the peritoneal cavity. The haemorrhage following the rupture appeared to have been responsible for death. The next case was not reported for over 160 years, until Rayer in 1837 described a haemorrhagic cyst of the right adrenal body weighing about 4 lb. Between 1865 and 1906, six further cases were presented before the Pathological Society in London and the same number of cases were described in European medical literature. These cysts varied in size from a marble (Ogle 1865) up to an enormous cyst containing 17 pints of altered blood which was successfully removed surgically, with recovery of the patient (Pawlick 1898). During this period a case was described of a serious cyst in the cerebellum (Turner 1888). Two cases of a cyst-adenoma were described (Crawford 1899; Rolleston 1899), and the first cases of lymphangiectasis of the adrenal associated with one or more larger cysts were also reported (Obendorfer 1905; Marchetti 1903; Bossard 1906).

The first attempt to classify the various cystic swellings of the adrenal was made by Henshaw in 1906, when he reviewed the literature and reported a fresh case. This classification with minor alterations is still applicable.

Classification of Adrenal Cysts

A. Parasitic cysts:
B. False cysts:
   Haemorrhagic cysts:
C. True cysts:
   Epithelial: cystadenoma:
      ciliated epithelial cyst.
   Endothelial: lymphangioma:
      lymphangiectasis.

Within this general classification, the great majority of cases fall into two groups, namely, the false or haemorrhagic cysts and lymphangiectatic cysts. A few of the reported cases are difficult to classify due to inadequate details, but no cases have been traced in which there was definite evidence of parasitic origin. In one case (Levison 1933) large bi-lateral calcified cysts were present but no evidence of hydatid disease was present, the Casoni test was negative, and in the cyst removed for histological examination, no characteristic pathological change could be found. Haemorrhagic cysts may arise as a result of trauma or infarction or from haemorrhage into a pre-formed cyst of some other origin.

Two cases have been reported in which the cyst was probably of an embryonic nature. In one (Sick 1903 b) the cyst was lined by ciliated epithelium, while the other was found in a monster (Cuilla 1937).

The most interesting group of cases are those of lymphangiectasis and particularly those cases which are combined with similar cysts or lymphangiectasis in other parts of the body. Major and Black (1918) reported a case of an enormous haemangioma of the skull and cystic lymphangiectasia of both adrenals. Sick (1903 a) recorded a case of a cystic adrenal in which there was microscopical evidence of actively growing lymph vessels.

It has been suggested that these cases fall into the group of 'hamartomata' (Rabson and Zimmermann 1938). The term hamartomata was coined by Albrecht (1904) to describe...
Fig. 1.—The operation specimen.

Fig. 2.—Magnification x 35. The main cyst wall at the lower left corner. Smaller cysts are shown in the cortex and medulla. Two hypertrophic nodules are shown at the upper and lower right corners.

Fig. 3.—Magnification x 91. A small cyst surrounded by cortical cells. A group of lymphocytes is present in the lower edge of the section.

Fig. 4.—Magnification x 48. A group of small cysts.
tumour-like formations in which there was a mixing of the normal components of an organ, the abnormality consisting of a change in quantity, arrangement or degree of differentiation. The majority of the recorded cases have been of unilateral cysts, but five cases of bilateral cysts have been noted. Four of these (de Vecchi 1910; Nowicki 1912; Major and Black 1918; Rabson and Zimmermann 1938) were cases of lymphangiectasis while the fifth (Levison 1933) was the case of bilateral laccified cysts of unknown etiology.

Case Report (L.R.I. 102712)

A man of 52 years, suffering from a severe degree of essential hypertension was undergoing a Smithwick thoracolumbar sympathectomy. On the left side, the first to be done, on palpation of the adrenal gland a small tumour about 1 cm. in diameter was discovered. In addition there was gross enlargement of the para-aortic lymph glands. It was thought that the adrenal tumour was possibly medullary in origin and thus the cause of the hypertension, and two thirds of the left adrenal gland was removed. One of the para-aortic glands was also removed. The sympathectomy was completed in the usual way.

Two weeks later, thoraco lumbar sympathectomy was performed on the right side and no abnormality was found in the right adrenal gland or para-aortic lymph glands.

Specimen

The gland was bisected through the swelling, which was found to be a very tense cyst. The fluid was clear and not blood stained.

Histological examination showed a cyst with a wall composed mainly of fibrous tissue with an endothelial lining. No elastic tissue could be demonstrated in the wall by selective staining. There are in close relation to the main cyst several small cystic spaces. Small groups of lymphocytes are present throughout the gland. The blood vessels in the medulla are normal in appearance and show no thickening of the walls. In the cortex there are small collections of hypertrophied cortical cells without any lipoid. These hypertrophic nodules are apparently not associated with the cyst and their significance is not clear. They may represent a stage in a normal cycle of hypertrophy and involution such as occurs in the thyroid, but this is a matter for speculation.

There is no reason to think that the nodules form part of a cyst-adenoma. The para-aortic gland shows considerable dilatation of the central lymph channels amounting to lymphangiectasis but no other abnormality.

The evidence of adrenal origin must depend upon the recognition of elements of normal adrenal tissue in or adjacent to the wall of the cyst. In many cases naked eye examination is sufficient, but in some the islets of adrenal tissue are so small that they have been seen only at microscopy. In one case (Lockwood 1898) doubt must be cast upon the origin for although the site was characteristic no adrenal tissue could be demonstrated. Various histological characteristics have been noted in recorded cases. The walls of the cysts and spaces have been described as being formed of endothelium, fibrous tissue, or both, and sometimes elastic tissue is present. Attention has been drawn to clumps of small darkly staining round cells which, according to Dietrich and Siegmund (1926), do not differ from sympathogonia. Other authors believe them to be lymphocytes. Thickening of the walls of adjacent blood vessels, both arterioles and vessels, has been described.

The histological appearances of the present case have been described. From an examination of the adrenal gland alone, it would be difficult to say whether the cyst was a false one arising from an old infarct or a true cystic lymphangiectasis, although the presence of the small cystic spaces adjacent to the main cyst is suggestive of the latter. In the opinion of the author, the probability of lymphangiectatic origin is strengthened by the presence of lymphangiectasis in the adjacent para-aortic glands.

Summary

The literature on cysts of the adrenal gland is reviewed and a classification of these cysts based on that of Henschen is given.

A further case is added to those already described in the literature and the histological features discussed.

An attempt has been made to compile a
complete bibliography of the condition and this is given at the end of the paper, although some references may not have been specifically quoted in the text.

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