Blastomycosis of the left adrenal gland.  
(Coccidioidal granuloma)  

by  

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(With plates 3—5)  

The modes of clinical manifestation of blastomycosis from Coccidioides immitis are: the lymphatico-visceral form and the lymphatico-tegumentary form. In both forms the lymphoid system is always found to be more or less damaged. The forms in which there is a location of the infection in deep organs alone, without affecting the lymphoid system, are cases for which it is difficult to account.  

Just because we met with a case of such a location, we resolved to study it carefully.  

The case in point is that of a post mortem examination, carried out on a male individual, of white complexion, 65 years of age, agricultural labourer. In accordance with the history reported by himself, when he was ill he never presented any evidence of the disease, having been admitted into the hospital on account of his presenting evident signs of atrophic cirrhosis of the liver. Careful examination of visible mucosae as well as of cutaneous tegument revealed no ulcerative process. Temperature rarely attained 37°5 C. during the whole period he was confined in the infirmary ward, and there was, no clinical evidence which could induce the supposition of an injury to the adrenal gland. The respective readings of maximum, middle and minimum arterial pressure were 12, 8 and 4.  

Post mortem examination (A. 6399) was carried out 6 hours after death; the anatomical alterations met with are summarized in the following diagnosis:  


On microscopical examination, the left adrenal gland presented a slightly enlarged volume containing in its thickness an ill-defined nodular
formation constituted by a white yellowish substance of caseous appearance, proliferation of connective tissue not being recognizable in the whole thickness of the organ. The right adrenal gland was exempt from such alterations and only presented pigmentation increase of the cortical layer.

Both the macroscopical and microscopical examination revealed, in no other organ, any appearance resembling that which was seen in the left adrenal gland every organ having been examined very minutely, lymphatic ganglia, buccal organs and intestine inclusively. The macroscopical examination of the lungs revealed: Both lungs presented a slightly enlarged volume, the right one weighing 530 grs. and the left one 610 grs. The pleurae are smooth and shiny throughout. On palpation, crepitation is decreased, the existence of nodules not being perceived. Cut surface is dark red, moist, giving out, when compressed, a foaming fluid intermingled with blood. In the thickness of the upper lobe of both lungs, in the middle third, there are found slight foci of proliferation of connective tissue, of whitish coloration, there being in the right lung, in correlation with one of these foci of fibrosis, a small nodule of yellowish coloration and of hard, yet not stony, consistency.

The alterations met with in the remaining organs are those which habitually exist in cases of atrophic cirrhosis.

In carrying out microscopical examination, it was verified that the appearance presented by the left adrenal gland was consecutive to the location in same of a lesion produced by a mushroom which by its morphological features could be identified with *Coccidioides immitis*. In fact, the lesions look very typical, there being production of inflammatory granulomas, often confluent and affected by necrosis from caseation, more or less extensive. The parasite appears in rather abundant quantity, being nearly always contained in numerous giant cells and reproducing itself by gemmulation. The inflammatory granulomas, apart from the giant cells already mentioned full of parasites, present lymphoid cells in large number as well as neutrophilous and eosinophilous leucocytes in small number. Connective proliferation is essentially moderate; apparently we are dealing with recent lesions, in full evolution. As far as the location of the lesions is concerned with regard to the layers of the adrenal, we verified that the medullary layer is almost entirely preserved, the greatest damage being found at the level of the cortical layer, independent of the affected zone. In some histological sections, close to the gland capsule which appears regularly thickened, a small lymphoid formation is found also affected by the same inflammatory process. Apart from this formation, no other lesion can be identified with the changes produced by *Coccidioides immitis*.

In the lungs, the histological sections carried out in large number and
in several regions reveal discontinuous foci of fibrosis, at times already of hyalin appearance, any lesion of specific character nowhere being encountered. Apart from these fibrosis foci, there are, moreover, to be seen areas of bronchopneumonia and passive hyperemia with oedema.

In interpreting this case the following hypothesis occurs to us, owing to the absence of lesions of ganglia and mucosae.

The primary location of the disease, very likely, occurred in the respiratory apparatus, in a not identified focus, propagating in the lungs in the form of circumscribed nodules. Such nodules, contrary to what occurs in similar cases always tending to progress and invade extensive pulmonary zones, underwent regression leaving, as a remainder, fibrosis foci which can no more be recognized or affiliated to any specific process. This possibility put forward with regard to the regression of the coccidioidal granuloma, in our opinion, constitutes a fact of real importance, as it makes us suppose the possibility of spontaneous cure of such lesions, which has not been provable in cases of the same disease as yet. On the other hand, the existence of typical coccidioidal lesions in deep organs, such as the suprarenal, without any visible damage of the lymphatic system, makes us also suppose the possibility that the disease may locate itself in deep organs, without evolutive lesions in structures which are related to the portal of entrance of the infection.

Such combination of aspects met with and referred to just now, in many cases, labeled visceral coccidioidal granuloma, may perhaps account for the mechanism of such locations, which would affect first the pulmonary structures.