RHEUMATIC INFECTION IN CHILDHOOD:

THE SUBCUTANEOUS FIBROID NODULE AS AN
EARLY MANIFESTATION.

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RHEUMATIC infection in childhood is likely to be overlooked until such time as one of the periodic exacerbations of the smouldering infection occurs, since at other times physical signs are in abeyance. It has been stated that subcutaneous rheumatic nodules usually make their appearance only in grave affections associated with gross cardiac disease. Arguing, however, on analogy with the findings in adults suffering from fibrositis, it did not seem improbable that nodules less obvious than those of graver infection might be discovered in subacute cases. When this suggestion had

FIG. 1.—Arteriole showing proliferation of lining endothelial cells. Perivascular mononuclear proliferation. Obj. 1/12 oil immersion (Zeiss). Eyepiece Leitz I.

been established in part by the examination of children known to be suffering from rheumatic infection, one hundred consecutive children between the ages of 2 and 12 years attending the out-patient department at the Royal United Hospital were examined very carefully for subcutaneous nodules irrespective of the complaints for which they were brought to the hospital.

In searching for the nodules particular attention was paid to the spinous processes of the vertebrae and to the olecranon processes. Both superficial and deep palpation was adopted; a slightly flexed position of the spine and flexion to a right angle of the elbow-joint were found to be most satisfactory, with a moderately firm application of the examining forefinger, using a to-and-fro movement on the olecranon and a rotatory movement on the spinal column. The nodules appeared to vary in size from a small sago grain to that of a pin's head, and were often in small clusters. Synovitic creaking was often obvious round the vertebral spines and is most characteristic. Individual observers vary in ability to palpate nodules, and a good deal of practice is necessary.

It has been found that the easiest way to remove nodules which are smaller in size than the impression conveyed by palpation through the subcutaneous tissues is to cut down on to a hypodermic needle thrust under the nodule.

Of the 100 children, 23 gave a history suggesting rheumatic infection, and in these no other causes of a

toxic state could be elicited except *Ascaris lumbricoides* in two instances, efficient treatment of which did not alleviate symptoms complained of. The cases are divided into groups as follows:

1. Without nodules and without cardiac bruits, or cardiac enlargement or chorea (1 case).
2. Without nodules, but with cardiac bruits or cardiac enlargement or chorea (4 cases).
3. With nodules, without cardiac bruits or cardiac enlargement or chorea (6 cases).
4. With nodules, prior to cardiac bruits or cardiac enlargement (5 cases).
5. With nodules concomitant with or subsequent to cardiac bruits, cardiac enlargement or chorea (7 cases).

No nodules could be found in any of the remaining 77 children.

Sir Thomas Barlow,¹ in his classical paper, considered subcutaneous nodules "in themselves indicative of rheumatism, even in the absence of pain," and "although unimportant in themselves are nevertheless of serious import." Bronson and Carr² quote instances to illustrate the general fact that "the nodules are a sign of some active rheumatic focus and that they tend to disappear as the infection becomes quiescent." It is contended that nodules

FIG. 2.—Cellular collections, mainly histiocytic in type. Obj. 1/12 oil immersion (Zeiss). Eyepiece Leitz I.

are a definite objective physical sign which can be elicited in a large number of children who present themselves as out-patients suffering from subjective symptoms suggesting rheumatic infection, prior to clinically demonstrable cardiac lesions.

I have to thank Professor Walker Hall of the University of Bristol for making sections of nodules removed from two children and for the following reports.

Fig. 1: The nodule is composed of fibrillar tissue, aggregations of histiocytes, and inflamed blood vessels. Some of the smaller arterioles show punctate proliferations of the lining endothelial cells. Perivascular mononuclear proliferation is frequent. The connective tissue contains many nodular collections of histiocytes. As yet these do not present any signs of necrosis. It is obvious that the etiology of the nodule may be associated with a persistent irritant of the subinfective or mildly infective type.

Fig. 2: The nodule is made up of fibrous tissue, damaged blood vessels, and mononuclear collections. The fibrous tissue is of medium consistence, and in places shows hyaline changes. The blood vessels present intimal and subintimal cellular proliferation and necrosis, and are in an early stage of endarteritis. The cellular collections are mainly histiocytic in type, without any necrotic change.

Further work is being done, and it is hoped to supplement this preliminary report with details in a larger number of rheumatic children at an early date, in conjunction with Dr. R. E. Thomas of the school medical service, Bath.

REFERENCES.

- ¹ Transactions International Medical Congress, 1881, 4, pp. 116-118.
- ² Amer. Journ. Med. Sci., June, 1923, p. 781-799.