in the ulna or radius, one must combine the diamond type of graft with multiple slivers, strips, and crushed up cancellous bone, which is laid in the periosteal tube along with the diamond graft. The latter forms a framework upon which the smaller grafts can build new bone and so ultimately fill the space with material strong enough to do the work of the normal ulna or radius.

CONCLUSION

Much of what I have said has had to do with failures. Failure, however, should occupy a very unimportant place in the surgery of bone grafting, and if the general principles discussed are remembered when the operations are being performed, it will be rare that a failure will need to be recorded.

ABDOMINAL MANIFESTATIONS IN RHEUMATISM

BY

K. H. TALLERMAN, M.C., M.D., M.R.C.P.

ASSISTANT PHYSICIAN TO THE CHILDREN'S DEPARTMENT, THE LONDON HOSPITAL; PHYSICIAN TO ADDINGTON GREEN CHILDREN'S HOSPITAL

Although abdominal manifestations in rheumatism are quite well recognized and have frequently been reported, cases in which pain in the abdomen is diagnosed at the outset as definitely rheumatic in origin must be very rare. It is usual for the rheumatic nature of such symptoms to become apparent a few days after their onset, and thus make the diagnosis certain. In a recent paper Giraldi¹ has called attention to this subject, and has given a very good review of the literature relating to it. The matter seems to be of sufficient importance to merit a report of the following cases, and prompts one to consider how frequently abdominal pain in childhood, in the absence of other symptoms, may be rheumatic in origin.

CASE I

D. H., male, aged 10 years, was admitted on the surgical side of the London Hospital, under the care of Mr. Alan Perry. Family history was negative. Past history: The boy was said to have suffered from rheumatism, with involvement of the heart, at the age of 5; since then he had suffered from time to time from limb and joint pains, which had sometimes been severe. No history of repeated sore throats or colds. Present illness: Four days before admission he complained of pain in the lower abdomen, and vomited; bowels had been constipated for two days.

December 8th, 1930 (on admission): There was tenderness and rigidity in the right iliac fossa, and appendicitis was diagnosed. At operation the peritoneal cavity was found to contain a little clear fluid, and the appendix was injected. On section it was reported to show changes consistent with slight chronic appendicitis, which, however, did not appear to be due to an acute attack. The boy progressed well for seven days, and then the temperature began to rise again.

December 16th: The boy looked ill, but, except for slightly diminished air entry and impaired percussion note over the lower lobe of left lung, no abnormal signs were noted. The following day a friction rub appeared in the precordial area, which subsequently became more marked and was heard distinctly all over the precordium.

December 30th: The patient was extremely pale. No rheumatic nodules noted. Throat normal. Heart: signs of pericardial effusion; mitral systolic and soft diastolic murmurs, and accentuated pulmonary second sound. Lungs: in left lower lobe percussion note impaired, with tubular breath sounds and crepitations, but nothing further abnormal. Liver enlarged almost down to umbilicus. The operation wound was healed.

January 2nd, 1931: Pericardial effusion markedly decreased.

January 12th: Hardly any effusion noted; lungs practically clear.

February 6th: Much better. Area of cardiac dullness normal; at apex, systolic murmur still heard and second sound reduplicated; pulmonary second sound accentuated.

March 2nd: No reduplication of apical second sound now present, otherwise physical signs in heart unchanged.

March 3rd: Some pain in left shoulder, and rise of temperature and pulse rate.

March 7th: Patient seemed very well. Pulse rate 88 to 90. Condition of heart as above; apex beat not fixed, and no other signs of adherent pericardium. Liver not enlarged.

About a week later the boy was discharged to a convalescent home. He was treated with sodium salicylate while in hospital.

CASE II

S. H., female, aged 8. Family history was negative. Past history: The girl was said to have had rheumatic fever, but the exact age at which this occurred was not known. Generally speaking she had not suffered from limb or joint pains, and there was no history of frequent sore throats or colds. She was admitted on the surgical side of the London Hospital (May 2nd, 1929) under Mr. Lett, with a history of vomiting and pain in the right iliac fossa for three days; for one day pain in the right knee. She appeared flushed and ill, had a furred tongue, and there was tenderness and rigidity on the right side of the abdomen. The heart at this time appeared normal. Appendicitis was diagnosed. Operation revealed an oedematous and injected appendix containing threadworms. On section the appendix was reported to show the changes of slight acute appendicitis, sufficient to have accounted for her symptoms. Three days after operation the pain in the right knee was more marked, and the left knee was also painful.

May 7th: Acute rheumatism diagnosed.

May 13th: Blowing mitral systolic murmur noted in heart. Patient transferred to the children's department.

May 15th: Knees tender but not swollen. No nodules noted. Heart not enlarged; localized blowing mitral systolic murmur; pulmonary second sound accentuated; no other abnormal physical signs. Pulse somewhat rapid, but otherwise child progressing well.

July 3rd: Physical signs in heart unchanged, except that the systolic murmur was not quite so marked.

July 31st: Child now appeared very well; no abnormal physical signs, and pulse rate had decreased.

August 23rd: Tonsillectomy performed.

September 17th: Child discharged. Heart appeared normal at this time; pulse rate 88 to 90.

The patient was treated with sodium salicylate during the early part of the illness.

I should like further to mention a case which I had the opportunity of seeing while working with Professor Marriott at the Children's Hospital, St. Louis, U.S.A. The child was admitted to the hospital on account of abdominal pain, and on examination appeared to present a picture of acute appendicitis. The case was not, however, entirely typical, and the surgeon who saw the boy decided to wait and watch him for a period. On the following day he had pain and swelling of the joints, and a typical attack of acute rheumatism developed, and ran a normal course.

DISCUSSION

It is still open to question whether appendicitis may be caused by acute rheumatism, or whether acute rheumatism itself may cause symptoms resembling those of acute appendicitis. I feel that the above cases exemplify the fact that abdominal disease may be simulated by rheumatism. The pathological changes in the appendix were slight in both of the cases reported, while there can be no doubt that these children were suffering from acute rheumatism. (The appendix showing the greater pathological change was that found to contain threadworms.) These cases are similar to certain of those reported and discussed by Giraldi and others.

In view of the frequency with which rheumatism occurs in children of the hospital class, and the number of times one is confronted with a child suffering from abdominal pain without other signs or symptoms, it is worth while considering how often children with these abdominal symptoms may be actually suffering from rheumatism, of which this pain is at the time the only manifestation. In this connexion the "digestive group" of rheumatic patients discussed by Giraldi¹ is significant. Another point of interest is the relationship which exists in childhood between sore throat, appendicitis, and abdominal pain, the first of which often appears to precede either of the others; this has been fully discussed by Brennemann,^{2,3} and seems to be of importance here because of the known association of tonsillitis with rheumatism. Obviously the possibility of a case that presents the features of true appendicitis proving to be rheumatic in nature must not be held to contraindicate operation, since, if the case should actually be one of rheumatism, no great harm should result, whereas a tragedy is likely to occur if acute appendicitis is left without surgical intervention.

Cases such as the above probably occur more frequently than is generally realized, and on this account it seems advisable that attention should be directed to them.

I should like to thank Dr. Bratton for the pathological reports, and those members of the staff who had care of the patients, for permission to report these cases.

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³ Idem: *Amer. Journ. Dis. Child.*, 1921, xxii, 493.

ONYCHIA AS AN OCCUPATIONAL DISEASE *

BY

H. HALDIN-DAVIS, M.D., F.R.C.P.

DERMATOLOGIST TO THE ROYAL FREE HOSPITAL

Considering how much the nails are exposed to inflammation and injury in innumerable industrial processes, it is remarkable how little has been written about them in the vast literature that has grown up in the last twenty years dealing with occupational diseases of the skin and its appendages. In the latest edition of Prosser White's book on occupational diseases of the skin there is scarcely any mention of the nails. In the exhaustive treatise on the same subject emanating from the Viennese school, collected by Oppenheim, Rille, and Ullmann, there is a short chapter on the subject contributed by Heller of Berlin, who for the last thirty years has been studying diseases of the nails, and is undoubtedly the greatest authority on them at the present time. Heller's chapter is illustrated by many excellent photographs, and shows many instances of deformity and atrophy of the nail brought about by various industrial occupations. Very remarkable are the erosions of the nails which occur among those who work in calcium chloride. Apparently, small collections of this substance are caught under the free margin of the nail and act almost like cauterizing agents on the tissues in the vicinity. Alterations in the nails owing to concomitant eczema are also well known, and occur in many departments of chemical industries. Another interesting industrial disease of the nail is that which affects certain workers in breweries. Those workmen whose duty it is to clean out the casks in which fermentation takes place often remove adherent masses of yeast with their finger-nails, and this causes the nails to be riddled with lacunae, while crusted excrescences grow beneath and cause the destruction of the nail. Most, however, of the lesions here described deal with

alterations of the terminal portion of the nail, which frequently in many industrial occupations becomes rubbed down by friction or softened by the macerating action of various fluids. It is well known, for example, that washerwomen never have to cut their nails, which are always soft and occasionally become loosened.

The type of lesion to which I wish particularly to direct attention does not, however, figure at all conspicuously among the recorded injuries inflicted on the nails by industrial conditions. I refer to chronic onychia. In the exhaustive treatise of Oppenheim, Rille, and Ullmann the word does not appear in the index. I have also searched the literature for some reference to onychia as an industrial disease, but can find no paper bearing on this aspect of the complaint. The only variety of onychia which has stirred clinicians to publication appears to be syphilitic onychia, which is the subject of several papers, and I now learn from Dr. Rolleston that diphtheritic onychia has been described.

The clinical characteristics of chronic onychia hardly require recapitulation. The skin at the base of the nail is thickened into a dull red sausage-shaped roll, encircling the nail and gradually tapering off as it approaches the distal end. There is no great quantity of pus produced, but an occasional bead of moisture may be expressed. In cases which have continued for some months, the nail-plate itself gradually loses its smooth and polished surface, becomes wrinkled, and may be actually deformed. I have seen a case in which the formation of the nail-plate was so seriously interfered with that only heaped-up friable material was formed, which really hardly bore the slightest resemblance to normal nail substance. There is a certain amount of tenderness at the inflamed bases of the affected nails, but otherwise the symptoms are not severe.

In my opinion, most cases of chronic onychia are caused by occupations which necessitate frequent immersion of the fingers in water, and the incidence of the complaint is probably encouraged when soda is used freely. Such occupations are beer-bottling, office-cleaning, and that occupation which, notwithstanding the social stigma supposed to be attached to it, is still the most widely followed in the world—namely, domestic service. The influence of continual moisture was well exemplified in the case of one young patient, a girl, employed in beer-bottling. She used to grasp the neck of the bottles with the left hand, and the beer continually overflowed on to her fingers; she contracted onychia on that hand only, while the fingers of the right hand, which were only seldom wetted, escaped. Another patient was a lady who, during the war, volunteered to do the washing for several of her soldier relations returning on leave. She contracted chronic onychia, which took several years to clear up. I think that it is commoner in women who only become exposed to this danger comparatively late in life than in those who are brought up to what may be described as the "rough work" of domestic service. Moreover, in many cases the hardened charwoman regards a slight amount of onychia as normal or "all in the day's work." I think that if one takes the trouble to examine the fingers of many of these ladies one will often find a slight degree of thickening of the skin round the base of the nail, even although they make no complaint about it. Another cause of onychia occasionally seen, but which is hardly describable as an occupational disease, is manicuring. There are some women who contract the condition from using the orange stick with excessive vigour. It may be of medico-legal importance to bear this possibility in mind. Circumstances may easily arise in which the occupation of the patient may be blamed for that which is really the result of a pardonable vanity, and the tendency of legislation is continually putting additional

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