Remarks

ON

ACUTE HAEMORRHAGIC NEPHRITIS.*

BY

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IN acute haemorrhagic nephritis the outstanding, and frequently the sole immediate, characteristic is the occurrence of gross renal haemorrhage; often this is directly related to infections in or around the throat. Otherwise there is no marked constant feature.

This condition is somewhat mysterious, and in textbooks of medicine it is practically unmentioned. There is, however, a considerable literature on the subject, mainly, until recently, by Continental and American authors. Hale-White, writing in 1911 under the title "essential renal haematuria," gave references to 120 articles. Among children it has been studied in recent years especially by Paterson, Wylie, Moncrieff, and L. G. Parsons. Many cases in adults pass into oblivion with a diagnosis of "essential haematuria."

The cause of this neglect is partly the fact that the immediate mortality is negligible, and even the remote effects are rarely serious or obvious. Further, the condition presents little, and usually none, of the ordinary features of acute nephritis apart from haematuria. But it is often the cause of much anxiety and of extensive biochemical and surgical investigations; occasionally, though rarely, it runs a serious course. The frequency with which such a course occurs is uncertain, and the progress is always very slow, but it is remarkable that the literature contains practically no examples where such cases have been followed deliberately to their end, the symptoms described, and the pathological changes recorded. This knowledge is still wanting.

The term "acute haemorrhagic nephritis" may be used provisionally to distinguish this condition from what may be referred to as "acute parenchymatous nephritis." As to its frequency, it is certainly not rare; all records from hospital wards show that it is commoner than acute parenchymatous nephritis. Even this underestimates its occurrence, for in an out-patient department one sees patients who attend once or twice and then disappear permanently, no doubt due to the absence of any further symptoms.

Etiology.

Age Incidence.—It is impossible to make any definite statements as to age incidence, since the condition has nearly always been studied separately in children and adults. It is certainly most common in children and young adults, but may occur even after the age of 30. The frequency mainly follows that of the predominant predisposing factor. The sexes are equally affected.

Predisposing Factors.—In children there is direct relationship in a high percentage of cases to definite infections in and around the throat; this is obvious in about 75 per cent. of cases, and differs from the relationship of acute parenchymatous nephritis to such infections, first in the far higher percentage, and secondly in the more definite nature of the infection, such as frank tonsillitis or marked cervical adenitis. Many cases may occur in epidemics, as in some outbreaks of glandular fever.

There are, however, cases in which no such predisposing factor can be traced; these are less numerous in children than in young adults and adults, and the latter are consequently more often investigated for possible surgical causes. It is noteworthy that scarlet fever is not a special cause of acute haemorrhagic nephritis; the association nowadays is evidently rare. This is referred to by Paterson and Wylie and by Horder. Syphilitic nephritis is not included in the group. An hereditary and familial form has been reported in one or two families and studied especially by Hurst, but it is very rare.

Symptomatology.

The characteristic feature is the sudden passage of a large amount of blood in the urine; the colour is often bright red, and on standing there is no gross microscopic sediment. The amount of albumin corresponds approximately to the quantity of blood. In the deposit, after centrifugalizing, red cells are predominant; there is no excess of leucocytes. In the early stages cellular and granular casts may be found, but they are scanty in number and their presence is transient. The deposit is thus very different from that of acute parenchymatous nephritis. The occurrence of oliguria was emphasized by early writers. It is, however, unusual, but, as L. G. Parsons noticed, it may occur and terminate in a sudden polyuria practically free from blood.

Bacteriological examinations are nearly always negative. Occasionally striking cases occur in which the same organism is isolated from the urine and from pus from an abscess in the neck. But cultures are usually sterile even when a definite infection can be recognized in or around the throat.

The haematuria not infrequently occurs one to two weeks after the subsidence of a preliminary tonsillitis or adenitis; in such circumstances there is rarely any general symptom other than some lassitude. This also applies to cases in which there is no obvious predisposing factor, as in many adults. In some instances the haematuria develops before the preliminary infection has subsided. In such cases, as Paterson and Wylie observed, there may be development of, or exacerbation of, headache, pyrexia, and abdominal discomfort.

The classical symptoms of acute parenchymatous nephritis are not found. Oedema is usually entirely absent; when it can be observed it is generally only a slight puffiness of the eyelids, or more often a pallor of the face with puffiness of the forehead. The heart, the blood pressure, the retinae, and biochemical tests show no variation from normal. Cystoscopic examinations show that the bleeding may come from either one or both kidneys.

Cases undoubtedly occur in which, with the onset of renal haemorrhage, as described previously, there is some more generalized oedema with or without a rise in blood pressure. In such instances the diagnosis may be doubtful, but this should not obscure the fact that in the great majority of cases there is a distinct difference in the symptomatology and progress of acute haemorrhagic and acute parenchymatous nephritis.

Course and Prognosis.

The haematuria, so far as it can be recognized by the naked eye, disappears rapidly in the great majority of cases—frequently in three or four days. In a few instances it may persist for three or four weeks, and at times, especially in children, cease after tonsillectomy. In a very occasional case it may continue for months.

It is in general the aim of a hospital or those in charge of a patient to keep the case under treatment and observation until all albumin is absent and no red cells are found after centrifugalizing. In a certain number of cases this is impossible owing to the clinical recovery of the patient and the long persistence of a trace of albumin and a few red cells.

An important question is the prognosis in such cases and their ultimate course.

In a series of children the urine at the time of discharge, approximately in 75 per cent. of cases, will contain no albumin or red cells, and in these there need be no anxiety as to the future. Of the remaining 25 per cent. the clinical condition will be good, and the amount of albumin and red cells will not exceed a trace in 20 per cent., leaving an occasional unsatisfactory case. Such a case will be marked by general ill health and the persistence of definite albuminuria and blood, which may be accompanied by a low result of the urea concentration test, occasionally with a slight rise in blood urea.

If such a series be re-examined after the lapse of several years, it may be stated that approximately 50 per cent. will be clinically in normal health, and the urine contain no albumin or red cells, while in 50 per cent. some albumin and red cells will be present. A death attributable to the disease is rare within three to five years.

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The question arises as to the future progress of the 50 per cent. of the patients who are passing albumin and red cells. Several observers have given the results of the clinical condition in series of cases without recorded reference to the urine. Some of these have been after long intervals. It is clear from these that any appreciable ill health is only present in a very occasional case, certainly not approaching 50 or even 25 per cent. It can consequently be assumed that the mere presence of some albumin and red cells in the urine at the time of discharge, or after an interval of several years, has not necessarily a serious import. About half these patients will be in perfect health without any abnormal physical signs; no future progress of nephritis need be anticipated in these. Of the remainder a few will give a record of recurrences of gross haematuria but without other signs of ill health. It does not appear that these have an unfavourable course. In adults this forms a larger group than in children. A few patients appear to be unwell, but without signs of defective renal secretion; this group would, of course, include cases with poor constitutions who would not have been counted healthy in any circumstances.

There will remain a small residuum of cases—say 5 per cent.—with definite evidence of progressing renal deficiency. Can this small but serious group be recognized in the early stages? I believe that this is so, and that these progressive cases are those which in the initial attack cause anxiety by the persistence of definite albuminuria and blood with signs of general ill health, and often by defective urea concentration tests. Thus from the onset, or shortly after the onset, these cases with a serious prognosis can be recognized, while in the remainder the prognosis is good even in the presence of persistent or recurrent small amounts of albumin and red cells.

The group with advancing renal defect drifts on to a state of chronic nephritis with increasing blood pressure and blood urea, oedema of face, and finally death in uraemia. It may be difficult to say whether a case is to be regarded as chronic parenchymatous or chronic interstitial nephritis, but in recorded cases interstitial changes are prominent.

Pathogenesis.

The pathological changes leading to the renal haemorrhage are still uncertain, and difficult to ascertain; possibly the group contains cases of different etiology, but, in general, it appears to be intermediate between nephritis and a haemorrhagic state. As a rule the patients do not die, and even the fatalities rarely occur until after the lapse of years. A certain amount of information about the pathology is obtainable from kidneys or portions of kidneys which have been removed at operation. Fahr has described the changes in the acute stages as a "diffuse capillaritis of the glomerular loops," but the changes observed amount to little more than the presence of haemorrhage in some of the glomeruli. Here and there may be a few foci of small round cells in the interstitial tissue, but the tubules and the remainder of the kidney are normal; many of the glomeruli are unaffected, and are sufficient to maintain efficiently the necessary renal functions.

In later stages kidney tissue has been removed principally in two groups of cases. In one group there have been repeated gross haemorrhages without clinical signs of renal insufficiency, and in these the kidney structure is often recorded as normal. In the other group there has been more persistent though less marked haemorrhage, together with evidence of renal defects; in these the kidney tissue presents the changes of chronic nephritis, and, though the exact type is variable, interstitial changes are usually recorded.

Returning to the structure in the acute stages, this may be described as a diffuse glomerulitis. The freedom of the tubules and of the passage from the glomeruli may account for the briskness of the haemorrhage. Similar pathological changes are found in the kidneys in subacute bacterial endocarditis, in which cocci are present in the affected glomeruli, and the lesions are accepted as being the result of bacterial emboli. The condition, however, differs from acute haemorrhagic nephritis in which no bacteria are found in the affected glomeruli, and the urine is practically

always sterile, though this is often so also in endocarditis. Further, acute haemorrhagic nephritis is not uncommon in glandular fever or infective mononucleosis, which is certainly not due to any of the ordinary cocci or bacilli. Nor could bacterial emboli account for the hereditary and familial cases of haemorrhagic nephritis which have been studied by Hurst and others. In subacute bacterial endocarditis the haemorrhage is usually microscopic, and in those cases in which it is gross a definite renal infarct is practically always found at necropsy. It may be definitely decided that acute haemorrhagic nephritis is not due to bacterial emboli.

Many cases occur so directly connected with a frank tonsillitis that it cannot be doubted that they are effects of the same cause. But it is impossible to say whether the mode of action is a nephritis or an increased permeability of the capillaries. If the haematuria is due to the latter cause, haemorrhages would be expected to occur from other parts with a certain degree of frequency. This raises a difficult question. Any case of haematuria in which purpura occurred would certainly not be included in this group in any records. With regard to epistaxis, it is so rarely recorded in the literature that one wonders whether the occurrence of it is not overlooked. Thus acute haemorrhagic nephritis occurs not infrequently in glandular fever, and in such cases it is, in my experience, usually associated with definite epistaxis. Some of the cases of acute haemorrhagic nephritis in children which are recorded in association with cervical adenitis are almost certainly instances of glandular fever. I may mention here that I have never seen a case of glandular fever with haematuria in which any ill effects subsequently developed. I have, however, once seen a child with this condition whose sister was in hospital with acute parenchymatous nephritis, which had commenced at the same time.

The close association of the condition with definite tonsillitis and cervical adenitis, which may occur in epidemics, is an argument that it cannot in general be due to a constitutional haemorrhagic diathesis. Some of the instances of repeated gross haemorrhage may, however, be of this nature. Some of these cases have developed anaemia, although not renal insufficiency, and the kidneys on removal for this reason have proved to be normal; possibly these should be regarded as a separate group. Kidd has shown that an occasional case of "essential haematuria" is due to purpura of the bladder.

The small group in which evidence of renal insufficiency develops show definite renal changes; as stated previously, these cases in general appear unusually grave from the first. The renal changes which occur do not appear to be constant, but it is evident that interstitial changes are often predominant.

This group again raises the question whether the renal changes are the result of persistent injury by haemorrhage or constitute a primary nephritis.

In the family affected with "hereditary, familial, congenital haemorrhagic nephritis" studied by Hurst, one branch suffered from what may be accepted as "acute haemorrhagic nephritis," but another branch tended to develop interstitial nephritis with little haematuria. This suggests that acute haemorrhagic nephritis is a true nephritis, and that changes in the glomeruli are the cause and not the result of the haemorrhage; this would appear to be the most probable explanation of the serious cases, but it is doubtful whether all cases are of the same nature.

Diagnosis and Treatment.

In children the diagnosis is usually simple. It is not difficult to exclude other forms of nephritis, and a predisposing factor in or around the throat is present in a high percentage. In adults the diagnosis must not be made until the "surgical" causes of haematuria have been excluded.

In the acute stage simple lines of treatment are sufficient. It is traditional, and for the present advisable, that patients should be kept under treatment, if possible, until red cells are absent from the urine; a trace of albumin may be neglected.

Those cases in which unsatisfactory features are present, as indicated previously, should be treated as for other forms of nephritis.