large pea, was found partly on the surface of one of the lower renal papillae. It arose from one of the intrarenal branches of the renal artery. It is unfortunate that, owing to the pressure of military surgery, the specimen was not preserved.

Aneurysm of the renal artery is very rare. M. J. Conroy¹ estimated from *post-mortem* records that only about 1 per cent. of all aneurysms affect this artery. Sir Henry Morris,² in 1900, was able to collect the records of only 21 cases, and two-thirds of these were traumatic in origin; Conroy, in 1923, succeeded in adding 11 cases, but he overlooked 3 cases published by David Newman³—making 35 in all. Two of Newman's cases were very like the one recorded here, for they were spontaneous in origin, saccular, and situated within the kidney or its pelvis. One of these arose in the renal artery itself, and the other, like mine, originated in one of the large branches of this artery. It is clear that this type is not easily recognized even when the kidney has been exposed in order to find and stop a painless haematuria which threatens life. It is probable that small aneurysms affecting the branches of the renal artery have been overlooked even after the kidney has been removed, either during life or after death. It would have been easy to miss the small aneurysm which caused so much mischief in my patient.

Apart from haemorrhage, these intrarenal aneurysms cause no symptoms or signs and are only found after death from some other disease.

Etiology.

We are not concerned here with traumatic aneurysms of the renal arteries, which are due to contusions, lacerations, rupture, wounds, or operations upon the kidney. The cause of *spontaneous aneurysms* is the same here as elsewhere. Atheroma, syphilis, embolism, or infection appear to have been the causes in the few recorded cases; in my case there was no evidence of any of these. The average age of the seventeen known cases of spontaneous aneurysm was over 40. A little more than half of them arose from branches of the renal artery.

Symptoms and Signs.

Spontaneous aneurysms are usually small in size, remain intact, and give no clinical signs, but when they rupture into the pelvis "symptomless haematuria," which is generally very profuse and either intermittent or remittent, occurs. This is in striking contrast to traumatic renal aneurysms, the majority of which cause large tumours in the loin and much pain with or without haematuria.

Diagnosis.

The diagnosis of spontaneous renal aneurysm depends chiefly on the great severity and recurrence of the painless haematuria, the absence of any history of injury, and the absence of the shadow of a renal calculus. It is interesting that in several cases (including my own) the bleeding was so severe that it ran continuously out of the urethra, so that its source was at first thought to be uterine. Several cases have needed a catheter because clots blocked the urethra. Cystoscopy, after washing out the bladder, proves the absence of vesical growth, and the issue of blood from one ureter indicates that the source is in the corresponding kidney. Newman, in two cases, noticed what he regards as a diagnostic sign—that is, "when interrupted pressure was made with the kidney between the hands—one behind and another in front—every time pressure was made a quantity of blood was seen to flow into the bladder, and when the pressure was withdrawn the flow ceased. This is found in no other condition." This sign, in his opinion, should distinguish renal aneurysm from all other causes of severe haematuria.

In my case the blood escaped continuously and with great force during the cystoscopic examination. I have not noticed such forcible and profuse bleeding even with renal neoplasm, which, by the way, often forms a palpable renal tumour—which spontaneous aneurysm rarely does.

Treatment.

Without operation the prognosis of bleeding renal aneurysm, either traumatic or spontaneous, is very grave. An early operation offers the only reasonable chance of

recovery. Hitherto nephrectomy has been adopted in all but one of the successful cases. Orth,⁴ operating for traumatic aneurysm, turned out the clots and successfully sutured the tear in the renal artery, but as a rule the condition of the kidney in these traumatic cases is so bad that nephrectomy is necessary. Before removing the kidney it is necessary to prove the presence and activity of the opposite one.

So far the diagnosis of spontaneous aneurysms in the kidney has been so uncertain and incomplete that in the few recorded cases nephrectomy has always been adopted, and on the whole very successfully. With the aid of a pedicle clamp after delivering the kidney, incising the pelvis should enable us to make an accurate diagnosis of an aneurysm in a branch of the renal artery, and to remove the aneurysm, which is usually quite small, without any loss of blood. It would be a great advance to save the kidney in this way, but it is probable that in some cases the aneurysm may not be discovered, and possible that, in a few, another small aneurysm may be present in the kidney or subsequently develop in diseased arteries to give recurrence of bleeding.

Whatever operation is performed, these patients are usually so ill and anaemic that blood transfusion must be done in order to give them the best chance of recovery.

REFERENCES.

- ¹ Conroy, M. J.: *Annals of Surgery*, 1923, lxxviii, 628. ² Morris, Sir H.: *Lancet*, 1900, ii, 1002; and *Diseases of the Urinary Organs*, p. 238. ³ Newman, D.: *Brit. Journ. of Surg.*, 1915, ii, 560. ⁴ Orth, O.: Vide Conroy, loc. cit.

A PLEA FOR THE EARLIER OPERATIVE TREATMENT OF ACUTE OTITIS MEDIA.

BY

F. HOLT DIGGLE, O.B.E., F.R.C.S.,

HONORARY SURGEON IN CHARGE OF EAR, NOSE, AND THROAT DEPARTMENT,
ANCOATS HOSPITAL, MANCHESTER; ASSISTANT HONORARY SURGEON,
MANCHESTER EAR HOSPITAL.

THERE is, in my opinion, no branch of surgery more neglected than the treatment of acute otitis media. Almost every day one meets with cases where an acute inflammatory condition of the middle ear has been allowed to progress until a state of chronic suppuration, with all its attendant sequelae, has resulted. Probably many factors contribute to this unfortunate result, but chief amongst them are, first, the ignorance of the general public; secondly, the lack, until quite recently, of compulsory training with examination of the medical student in the diseases of the ear; and lastly, the fact that, except in a few cases, a visiting otologist is not recognized as a necessary member of the staff of a large fever hospital.

The exanthemata are responsible for the majority of the worse types of suppurative middle-ear disease, and it is at their inception that so much can be done to prevent a progressive and chronic disease. It is to be hoped, therefore, that in the near future local authorities will see the wisdom of following the example set forth by a few of our large fever hospitals in appointing visiting otologists.

Given a case of acute otitis media, how should it be treated? All are agreed upon the value of an early incision of the tympanic membrane, and yet I wonder how often it is advised, judging from the large number of "running ears" where no such treatment was adopted. The ear is syringed, hot applications applied, and the appearance of pus in the meatus anxiously awaited. It is too frequently thought that when pus appears all is well, but Nature's perforation of the tympanic membrane is in practically every case a tension rupture—that is to say, the increased intratympanic pressure, from the accumulation of inflammatory products, is ultimately relieved by a bursting of the membrane.

The tympanic membrane is capable of withstanding a high degree of pressure, and in many cases, before the membrane ruptures, the increased intratympanic pressure has disseminated the infection into the posterior end of the middle-ear cleft—the mastoid antrum. Moreover, the perforation is small, usually on the summit of what was a bulging part of the membrane, and

therefore frequently most disadvantageously placed for the efficient drainage of the tympanum. By early paracentesis efficient drainage can be established, the risk of spread of infection to the mastoid antrum materially lessened, and, in the vast majority of cases, pain immediately relieved. It is an operation devoid of risks in the hands of those accustomed to aural surgery, can be performed under short anaesthesia, and gives excellent results both as regards preservation of hearing and resolution of infection.

In the majority of cases so treated there is rapid cessation of the discharge, which often is only serous, and the middle ear is generally dry at the end of ten to fourteen days, if not earlier. In a few cases, however, this excellent result is not obtained, and in spite of timely paracentesis the ear continues to discharge profusely. Two factors contribute to this result—namely, the extreme virulence of the infection, particularly the type of organism, and the presence of some meatal obstruction hindering drainage. Infections due to the streptococcus or influenza bacillus are very prone to spread to the mastoid antrum. Further, in some cases, perhaps by reason of the virulence of the infection, there is marked inflammatory swelling of the external auditory meatus. This, if occurring in a meatus congenitally narrow, considerably hinders efficient drainage of the middle ear.

It is commonly believed that the only necessity for any operative treatment is when pain, tenderness on pressure, or swelling behind the ear develops. The development of such signs and symptoms may almost be regarded as a godsend, for then the case is efficiently treated and convalescence with cessation of discharge assured.

The anatomical structure of the mastoid process decides whether pain, tenderness, etc., appear early or not. They are evidences that the inflammation has spread so far as to involve the mastoid periosteum. In the cellular type of mastoid process they frequently become manifest early, but in the acellular dense or sclerotic type they may be considerably delayed if they ever develop.

There are, however, other earlier signs of involvement of the mastoid antrum—namely, bulging and redness of the postero-superior part of the tympanic membrane and the adjacent portion of the posterior wall of the external auditory canal. To appreciate this sign, however, requires some special training. I would therefore urge that the persistence of suppuration after ten to fourteen days, in spite of early paracentesis, especially if associated with some inflammatory stenosis of the meatus, is, even in the absence of pain, tenderness, or swelling, an indication that something more than local medication is required and that the mastoid antrum should be opened, disinfected, and drained.

If such a procedure be not adopted the case may pursue one of two courses: either the condition gradually progresses until the mastoid antrum and process is involved, demanding immediate operation, or there is gradual resolution of the discharge during several weeks, until finally the patient declares that the ear is dry and he is quite well. In some such cases we find that the perforation has healed and the membrane is intact, but permanent damage may have been wrought. The membrane is frequently scarred, opaque, thickened, indrawn, and adherent to the inner wall of the tympanum, permanently impairing audition, if not also producing other distressing symptoms, such as tinnitus and vertigo. In other cases, though the membrane may appear to be normal in texture and position, the hearing is defective, owing to adhesions around the ossicular chain or thickening with fibrosis of the muco-periosteum around the labyrinthine windows. These changes are the result of long-continued inflammation causing excessive cellular exudation into the muco-periosteum, with ultimate fibrosis and sclerosis, and are permanent, no treatment being of any avail. This class of case swells the out-patient clinic and is distressing to see, particularly in view of the fact that so little can now be done, whereas so much was possible at an earlier date.

Lastly, it may be discovered that the perforation has not healed, is still moist, although the patient on interrogation is quite convinced of the absence of any discharge. This class of case often has remarkably good hearing, but he is

the patient who frequently first seeks advice, because of the sudden onset of some intracranial complication.

If we wait until there are external evidences that the mastoid process is involved before resorting to operative treatment—a delay which may extend over a few weeks—then the pathological changes above described ultimately ensue, with some permanent impaired audition.

Early Drainage of the Mastoid Antrum.

By early drainage of the mastoid antrum I do not mean the so-called radical mastoid operation, in which the tympanum, aditus, and antrum are thrown into one cavity, but the simple operation of exposing the mastoid antrum, curettage of its walls, disinfection of the interior with bipp, and primary suture of the incision.

In 1921 I reported jointly with Mr. Gillespy¹ the results of a series of cases so treated. The average duration of stay in hospital after operation was twelve days. At the end of this period there was no otorrhoea, except in one case which was an acute exacerbation of a chronic suppuration necessitating a radical mastoid operation. These cases, examined one year or more after treatment, showed an intact membrane with normal hearing. Such results as these are shared by many, and only go to prove the good results obtained by early operative treatment.

I have frequently resorted to early exploration of the mastoid antrum in cases of persistent discharge with no gross lesion of the mastoid, and have had no reason to regret it. It is an operation almost devoid of risk and followed by speedy healing and convalescence since the introduction of bipp; it gives gratifying results both as regards cessation of discharge and preservation of hearing.

There is, in my opinion, no greater field for the fulfilment of the principles of preventive medicine than in the treatment of acute otitis media—once deafness is established no known treatment is of any avail.

REFERENCE.

¹ *Journal of Laryngology and Otology*, October, 1921.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, BRADFORD, 1924.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

Professor C. H. BROWNING, M.D., President.

MULE-SPINNERS' CANCER AND MINERAL OILS.

BY

ARCHIBALD LEITCH, M.D.,

Director of the Cancer Hospital Research Institute, London.

No less than 20 per cent. of the fatal cases of cancer of the scrotum in this country occur amongst cotton-spinners.

By courtesy of the Registrar-General for England and Wales we have had access to unpublished records which disclose the fact that during the two years 1913-14 90 men died from scrotal cancer, and of these, 18 (or 20 per cent.) were cotton-spinners; in the years 1921-22 the total number was 107, of whom 26 (or 24 per cent.) were spinners; and in 1923 there were 15 fatal cases in this industrial class. This gives an average of 11.8 per annum. No other group of occupations, with the exception of chimney-sweeps, showed more than three cases. Cancer of the scrotum is not a very common disease: it is much less common in the general population than cancer of the penis, for example. During the first two periods mentioned there were 254 and 284 cases respectively of penile cancer, but not one occurred in cotton-spinners.

Here, then, we have something of practical importance, industrially and medically, that calls for explanation and investigation—a particular form of cancer occurring in a certain industry—and yet, strange to say, no one until within the last two years seemed to have known or to have suspected this association. The credit for this important discovery must be given to Southam and Wilson.¹ If our