with deep pain in the perineum, pain on defaecation, and perhaps pain in the sacrum, testicle, or hip-joint. In *vesical tumour* there may be pain due to cystitis, blood clot blocking the urethra, ureteric obstruction, or pressure upon nerves. The pain may at first be unilateral, pointing to the growth being on the corresponding side of the bladder. In *carcinoma of the prostate* the pain, which is unconnected with micturition or movement, is usually a constant dull ache, but is sometimes severe and lancinating. It may be referred to the suprapubic region, urethra, perineum, hip-joints, thighs, testicles, etc., and is liable to be mistaken for sciatica.

Patients may complain of agonizing pain in the bladder, perineum, etc., and of other symptoms for which no adequate explanation can be found; but before diagnosing the condition as neurotic careful search must be made for an organic cause, and commencing spinal disease must not be forgotten.

TWO CASES OF INTRACRANIAL COMPLICATION OF ACUTE EAR DISEASE.

BY

PETER MACDONALD, M.D.,

SENIOR HONORARY SURGEON, EAR, NOSE AND THROAT DEPARTMENT,
YORK COUNTY HOSPITAL.

AND

J. ACOMB, M.B., B.S.,

ASSISTANT HONORARY SURGEON, EAR, NOSE AND THROAT DEPARTMENT,
YORK COUNTY HOSPITAL.

THE two cases described below of intracranial complication of acute otitis media were in-patients at the York County Hospital, one under the nominal care of one of us, the other of the other. The treatment, however, operative and other, as well as the process of diagnosis, was the joint work of both of us, so that they may be regarded as patients common to us jointly. They both present unusual features which seem to us to make them worth recording.

E. L., a man aged 36, was admitted on January 19th, 1922. Ten days previously he had had "influenza," and about a week previously, about January 12th, he became deaf in the right ear, and this ear began to discharge. A day or two later he became deaf in the left ear; but this ear did not discharge. There was a doubtful history of a rigor on January 18th, the day before admission.

On admission, both mastoid processes were somewhat tender; the patient was very deaf in both ears. The right drum membrane was acutely inflamed, and there was discharge from the tympanum. The left meatus was full of wax, and on removal the membrane was found somewhat inflamed, but not apparently bulging. The temperature was about 100°. There was some very slight swelling and redness of the right optic disc, and a doubtful swelling of the left disc. The patient was somewhat dull and lethargic, but did not appear very ill.

The right mastoid process was operated on the same evening. The mastoid cells were inflamed, and many of them contained granulations; but there was very little, if any, free pus. The lateral sinus was laid bare, but appeared to be healthy. The left drum membrane was freely incised.

Next day the conditions seemed to have improved, and there was but little change for a week, the temperature fluctuating between 98.4° and 100°. There was little, if any, discharge from the left ear. The general condition improved; there was less drowsiness and lethargy. The swelling of the optic discs, however, increased, and on January 23rd a haemorrhage was noticed in the neighbourhood of the left disc.

On the evening of January 26th he had a rigor, and the temperature rose to 105.8°. A diagnosis of thrombosis of the lateral sinus, which had formerly been suspected, was now definitely made, and it was decided to explore the sinus. The right sinus was suspected, there being but small evidence of any serious trouble on the left side. There was, in fact, little evidence, except deafness, of any trouble on the left side. The right sinus was accordingly laid bare at greater length. It looked healthy, but a needle was inserted into the sinus and blood aspirated from it. Blood came away freely, and it was evident that the sinus was not thrombosed, at least above the level of the jugular bulb. It was thought that the vein might be thrombosed at the bulb, and so the internal jugular was exposed in the neck, but it was quite evident that there was no thrombosis.

In view of the presence of the optic neuritis we decided, although there was no other evidence of brain abscess, to explore the temporo-sphenoidal lobe. The tegmen antri was removed, and an area of dura exposed. There was no extradural abscess. The dura appeared to be bulging. We opened it and passed a sinus forceps in several directions into the temporo-sphenoidal lobe, but no pus was found.

We were nonplussed. We had found nothing to account for the condition, and after a hurried consultation we decided to explore the left mastoid and left lateral sinus. The mastoid process was accordingly rapidly opened. The mastoid cells were inflamed and many of them filled with granulations, and on laying the sinus bare it did not look healthy. A syringe needle was inserted into the

sinus, and no blood could be aspirated from it. The jugular vein was rapidly exposed in the neck and tied above the common facial, and the clot curetted out of the sinus until blood flowed freely from its upper end. The petrosals were evidently not thrombosed, so that the upper portion of the jugular vein had to be kept tied, and we were unable to wash through from the sinus. The temperature next day was normal. It rose on January 28th, and remained between 99° and 100.5° until February 9th. It is probable that this was due to pus in the upper portion of the jugular vein and bulb into which the septic thrombus broke down.

The pathologist's report showed that the blood aspirated from the right sinus was sterile, and a culture from the thrombus on the left side contained streptococci.

The condition of the patient continued to improve, except that the optic neuritis persisted, until February 20th, when he became drowsy and lethargic, and further operation was arranged for on February 21st. But on dressing the right ear on the morning of that day a copious discharge of pus was found in the right mastoid wound, apparently from the region of the exposed dura of the temporo-sphenoidal lobe, although the wound had so closed up that the source could not be precisely determined. From this time the patient made an uninterrupted recovery, and the optic neuritis rapidly disappeared. He was discharged on April 22nd, with both wounds healed, and hearing in both ears was good. He has been seen recently, and is in good health.

The course of events can now, in retrospect, be fairly well established. An infection of both middle ears was contracted, and while there was no violent inflammation of either mastoid process, there was an extension of the inflammatory process on the right side into the temporo-sphenoidal lobe, setting up a slow abscess there, and on the left side to the lateral sinus, setting up a septic thrombosis. By opening up the right temporo-sphenoidal lobe we allowed of an ultimate escape for the pus there, although we did not actually strike the abscess, which was undoubtedly present. On the other hand, had we struck the abscess at the time of the operation on January 26th it is quite likely that we might have been satisfied that we had found enough to account for the symptoms, and might not have attacked the thrombosis of the left sinus until too late. Had the abscess not evacuated itself spontaneously on February 21st we should most likely have attacked the left temporo-sphenoidal lobe before going back again to the right in view of the presence of the neighbouring septic condition in the right sinus. As it was, we did just enough to allow of recovery, and freely admit that this was largely a matter of good fortune in what was a puzzling case.

The second was a case of middle-ear disease, complicated by infection of the mastoid antrum and cells, and sinus thrombosis. The special feature was the extent of the thrombosis and the comparative mildness of the symptoms.

H. H., male aged 19, had a history of earache from the age of 6 years with intermittent discharge from the right ear, especially after he had "contracted a cold."

He was admitted to the hospital on November 19th, 1921, suffering from a scanty discharge from the right ear, and was feeling ill and shivery. The temperature was 102°, pulse rate 84, respiration rate 20. The right tympanic membrane was incised and a discharge of serum and blood came away. The following day he felt better, but later he had a rigor, with a temperature of 105° falling, with profuse perspiration, to 99.5°. We decided to open up the mastoid and explore the sinus. The mastoid cells and antrum were found to contain pus and granulations. The sinus was pulsating freely and appeared normal. It was explored and found to contain thin pus. The internal jugular was exposed in the anterior triangle; it had become practically converted into a bag containing fluid pus. The vein was divided, but it was found impossible to reach the lower limit of the clot although the vein was followed down to the level of the sterno-clavicular articulation. The sinus was followed backwards and to the bulb; it was opened and as much of the clot and thin pus removed as possible. Neither end of the vein was tied.

Bacteriological examination of a specimen taken at the time of operation was reported as a pure culture of streptococci. Intravenous injections of polyvalent antistreptococcal serum were given. Three days after operation streptococci were reported as being present in a blood specimen taken. An autogenous vaccine was prepared and given.

The progress of the case was uneventful, and on February 1st, 1922, the patient was discharged, his condition, according to our notes, being as follows: "Looking very fit. No dressing needed for mastoid or scar in the neck."

The remarkable features appeared to us to be the mildness of the symptoms considering the extent of the disease, the absence of pain over the classical sites, the extent of the thrombosis, the absence of pyaemic complications despite the presence of fluid pus in the jugular vein and of streptococci in the general blood system, and the impossibility of removing the whole of the infected material.

Our thanks are due to our house-surgeon, Dr. Janet Nicol, for her supervision and notes of these cases.