Intracranial Infection Complicating Chronic Ear Disease

Lt Col K B Hughes

MB, FRCS, DLO, RAMC

Maj J Simon

MA, BM, RAMC

British Military Hospital, Hong Kong

SUMMARY: A case of extradural and cerebellar abscess complicating chronic ear disease in an 18 year old Chinese girl is reported. The case history illustrates the difficulties experienced in making the diagnosis.

Case Report

An 18 year old Chinese girl was admitted with a one week history of fever, headache, constipation and pain in her left ear. She gave a history of recurrent ear problems during childhood. On examination temperature was 39.3°C with a pulse rate of 100 per minute. Pus discharged through a perforation of her left tympanic membrane. The ESR was 100 mm in the first hour, haemoglobin 11.4 Gms/100 mls, white cell count 11.7×10^3 c.mm with 79% polymorphonuclear leucocytes. Chest X-ray, urea and electrolytes and a Denco were all normal. Swabs from the throat and left ear, and blood and urine cultures were negative. X-rays of her skull showed a large bony defect in the left mastoid, which was otherwise sclerotic and poorly pneumatized.

She was started on benzylpenicillin and continued on cotrimoxazole. Two hours after admission she suffered a generalised convulsion which lasted 3 minutes. Immediately after this she was delirious and had an axillary temperature of 42°C. She was changed from intramuscular to intravenous benzylpenicillin.

On the second day of admission her temperature was 38°C. She was lethargic and had a slight degree of meningism but there were no other neurological abnormalities. There was evidence of acute on chronic ear disease but there was no evidence of acute mastoiditis.

On the morning of the fourth day of admission she was afebrile, lethargic and mentally dulled. She had early left sided papilloedema but there were no other neurological abnormalities. A CAT scan was arranged for the next day. That evening, however, she became pyrexial and was found to have left sided cerebellar signs, nystagmus, bilateral extensor plantar and absent abdominal reflexes. Emergency mastoidectomy revealed extensive cholesteatomatous disease invading the mastoid. The floor

of the temporal fossa over the attic was removed and normal dura found. The bony plate over the sigmoid sinus was removed and a large extradural collection of pus was found. A modified radical cavity was formed. Streptococcus Group C was cultured from the left mastoid cavity and Streptococcus pneumoniae from the extradural abscess. Dexamethasone was started postoperatively.

She slowly improved over the next week and the cerebellar signs gradually disappeared. Her drowsiness, however, did not improve and on the fourteenth day of admission she again developed gross signs suggesting a left sided cerebellar lesion. An emergency CAT scan showed a large left sided cerebellar abscess (Figure 1). An emergency occipital burr hole was made and the cerebellum needed. A large quantity of foul smelling pus was aspirated.

Fig. 1 Left sided cerebellar abscess

from a cavity 3 cm from the dural surfaces. Three mls of 'hypaque' containing 200 mg Streptomycin and 0.5 megaunits of benzylpenicillin was instilled, and a 10 gauge polythene cannula left in situ. Culture of the pus grew *Klebsiella pneumoniae*, sensitive to gentamicin, and *Streptococcus* Group C, sensitive to cloxacillin.

She was transferred to a neurosurgical unit where the catheter was left in situ. The cavity was irrigated for 1 week with gentamycin and cloxacillin with concomitant parenteral administration of the same drugs for 6 weeks. She was discharged from the neurosurgical unit, 100 days after the beginning of her illness, with no neurological deficit.

A further operation on the left ear was performed 5 months after the original admission. Areas of necrotic petrous bone were eradicated and a temporalis fascia graft was made to the middle ear.

On review 9 months after the original admission there was a dry intact middle ear segment, a healthy mastoid bowl and good sensorineural function of the left cochlea. There was a very mild degree of dysidiadokinesis of the left forearm and there were no other neurological abnormalities.

Discussion

Brain abscesses are now a rare occurrence. The incidence has dropped more than tenfold from that in the preantibiotic era and Newlands reported only 80 cases as occurring in Scotland during the period 1953-1962. Chronic ear disease accounts for more than half the cases and leads to either temporal or

cerebellar lobe abscesses in a ratio of 2:1. In 10 years of ENT practice the main author has seen only 3 cases. In one case the diagnosis was made at post mortem and in the other two cases the diagnosis was made late in the clinical course of the illness.

In this case the diagnosis was made late in the illness when neurological signs were gross. It is considered now that insufficient attention was paid to the patient's mental state and insufficient consideration was given to the possible co-existence of brain abscess once the extra dural abscess was identified. Her slow recovery following the drainage of this extradural collection should have aroused suspicion of a further pathology.

It is worthy of note that nine months after an abscess causing gross destruction to the left side of the cerebellum she has minimal residual cerebellar signs. It is also of interest that cochlear function was unaffected by the adjacent virulent infection.

Conclusion

A case of extradural and cerebellar abscess complicating chronic ear disease in an 18 year Chinese girl is reported. The case history illustrates the difficulties experienced in making the diagnosis.

REFERENCE

NEWLANDS, W J. Otogenic brain abscess: a study of eighty cases. *J Laryng* 1965; 79: 120-130.