no improvement was observed in the other two patients in whom the $^{14}\text{CO}_2$ breath output was normal. The response to ^{14}C -GCA became normal after antibiotics (table II).

The one patient (case 19) in whom faecal ^{14}C output was raised had failed to respond to an earlier course of cholestyramine.

Discussion

The only other report of the ^{14}C -GCA test in diabetic diarrhoea is in a brief letter by Low Beer.¹⁹ He found normal results in six patients, but no details of other gastrointestinal investigations were given and the effect of antibiotics was not described.

Our findings indicate that a positive breath component of the ^{14}C -GCA test is found in some but not all patients with diabetic diarrhoea and no other recognised gastrointestinal disorders. The low faecal excretion of ^{14}C in all but one patient and the satisfactory response to antibiotics suggest that there is bacterial overgrowth and excess bile acid deconjugation in the small gut, rather than bile acid malabsorption.

Evidence for bile acid malabsorption was found only in case 19. This patient had the most severe diarrhoea but had not responded to previous courses of cholestyramine. Condon *et al*⁹ briefly described some patients with this syndrome who did respond to cholestyramine, but this treatment has not been evaluated in a controlled fashion; nor was it tried in our other patients with diarrhoea. Our findings suggest that cholestyramine is unlikely to benefit most patients with diabetic diarrhoea if its action is confined to binding bile acids in the gut lumen.

In the absence of other aetiological factors bacterial overgrowth may result from a change in small intestinal motility. The strong association of autonomic neuropathy with diabetic diarrhoea described by others was confirmed in this series. Our patients with a history of diarrhoea were found to have more widespread evidence of autonomic malfunction than most of the

other subjects. Therefore disturbances of intestinal motility probably result from autonomic damage, and because of the patchy distribution of autonomic neuropathy only a few patients are affected.

The ^{14}C -GCA test, which is simple and well tolerated, may be used to rationalise treatment in diabetic diarrhoea by indicating those patients in whom antibiotic treatment is likely to prove beneficial.

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Requests for reprints should be addressed to JHBS.

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SHORT REPORTS

Marcus Gunn phenomenon associated with synkinetic oculopalpebral movements

The Marcus Gunn jaw winking phenomenon is characterised by abnormal palpebral movement associated with movements of the jaw. We report the second case, in which an associated concomitant convergence strabismus corrected itself automatically with the elevation of the ipsilateral ptotic lid when the jaw was opened or when ptosis was passively corrected.

Case report

A 17-year-old woman had congenital ptosis of the left upper lid with concomitant convergent strabismus of about 20° on the same side (see figure, *a*). She had always been healthy and she had no history of trauma to the head. On examination movements of the eyes were normal. On opening the jaw or twisting the mouth to the opposite side, either passively or actively, the ptosis and the strabismus corrected spontaneously (see figure, *b*). In contrast, twisting the mouth to the ipsilateral side—that is, to the left—did not correct these. On lifting the left upper lid passively, the strabismus also disappeared. She seemed to be otherwise normal. She was offered a Blaskovics operation, but did not accept and discharged herself.

Discussion

The first case of Marcus Gunn phenomenon associated with synkinetic oculopalpebral movements was described by Garkal.¹ This

is the second case. The phenomenon is produced as the result of congenital misdirection of the motor division of the fifth cranial nerve. The pathways responsible for the clinical findings are afferent ones, beginning with the external pterygoid muscle supplied by the motor division of the fifth cranial nerve. The mesencephalic root of the

Congenital ptosis of left upper lid with concomitant convergent strabismus (*a*). Ptosis and strabismus were spontaneously corrected when jaw was opened (*b*).

trigeminal nerve, which supplies the external pterygoid, is linked to the muscles of the oculomotor nerve and finally to the levator of the upper lid, forming the efferent arc. The condition is unilateral and it is usually more of cosmetic than functional importance.

¹ Garkal, R S, *British Journal of Ophthalmology*, 1961, **45**, 566.

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Early antenatal diagnosis of spina bifida in a twin fetus by ultrasonic examination and alpha-fetoprotein estimation

The finding of raised alpha-fetoprotein (α -FP) levels in the amniotic fluid is the most common method for the early antenatal diagnosis of spina bifida.¹ From a case of triplet pregnancy in which one fetus had an omphalocele,² there is evidence that α -FP can pass across the chorionic membrane, resulting in significantly raised α -FP values in the amniotic fluid surrounding a normal fetus. This is a potential source of diagnostic error and may result in the termination of a normal twin fetus, whose mother has a reduced chance of having a normal child.

We have described the early antenatal diagnosis of spina bifida with ultrasound³ and report here on a patient with dizygotic twin fetuses that were discordant for spina bifida and which were correctly assessed at 17 weeks menstrual age by ultrasound examination and α -FP estimation.

Case report

A 26-year-old Caucasian woman's first pregnancy in 1974 had resulted in the delivery of a girl with hydrocephalus and meningocele; she died at the age of 12 days. In the present pregnancy ultrasonic examination was performed at the Central Middlesex Hospital at 14 weeks menstrual age and a twin pregnancy diagnosed. Amniocentesis was performed and the α -FP level was found to be 128 mg/l, which is well above normal.⁴

A second ultrasonic examination was performed at Queen Charlotte's Hospital at 17 weeks; the membrane dividing the two amniotic sacs was identified (see figure, a) and amniotic fluid removed from both sacs by inserting a needle on each side of the membrane. Ultrasonic scanning to the right of the membrane showed a 17-week fetus with a dorsolumbar meningocele (see figure, b and c). The fetus on the left, also 17 weeks in size, was diagnosed as being normal. The α -FP level was raised in the fluid surrounding the right twin (77.5 mg/l) and normal in the fluid from the left sac (28.0 mg/l).

The parents were told that a fetus with spina bifida had been identified but that the other twin was believed to be normal, and they decided to continue the pregnancy. Repeat ultrasonic examinations at 26 and 34 weeks showed increasing cerebral ventricular dilatation in the affected twin. The patient went into labour at 37 weeks but failed to progress and caesarean section was performed.

The right twin was hydrocephalic with a dorsolumbar spina bifida; this girl weighed 1820 g. The left twin, also a girl, was apparently normal and weighed 2700 g. Serological studies on both twins proved dizygosity. The abnormal twin died on the second day after delivery. The pathologist reported that the spina bifida affected D10 and L5 vertebral arches; the brain showed Arnold-Chiari malformation. The normal twin progressed well and subsequent paediatric examinations have confirmed a normal female child.

Comment

The success of amniotic fluid α -FP determinations in this case contrasts with the false information leading to the termination of two normal fetuses in the case described by Nevin and Armstrong.² These workers presented results from a triplet pregnancy with two sacs, one of which contained a fetus with exomphalos. Amniotic fluid α -FP levels at 16 and 17 weeks showed a 3:1 and a 2:1 gradient respectively between the abnormal and normal sacs, but because of extremely high levels in the abnormal sac the levels in the other sac were above the normal range. In our case a similar (3:1) gradient in α -FP was found between the abnormal and normal sacs and α -FP estimation was

Echograms at 17 weeks menstrual age showing (a) chorionic membrane (CM) dividing two sacs; (b) transverse scan of fetal body in upper dorsal region showing circular outline of a normal spinal canal (SC); and (c) transverse scan of fetal body in lower dorsal region showing the spina bifida (SB).

successful only by virtue of the modest increase in values in the abnormal sac. This gradient is unlikely to occur when there is only amnion separating the sacs.

Ultrasound examination contributed to the successful outcome, by facilitating the removal of clear amniotic fluid from each sac and by identifying the extent of the spinal lesion in the affected fetus. To date 10 fetuses with spina bifida have been screened with ultrasound before 20 weeks in Queen Charlotte's Hospital; in seven cases the spinal defect was detected, the lowest lesion affecting vertebral arches L4 and 5 and the sacrum; three low lesions affecting vertebral arches L5 and the sacrum were not diagnosed. No false-positive diagnosis of spina bifida has been made by this technique.

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³ Campbell, S, et al, *Lancet*, 1975, **1**, 1065.

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