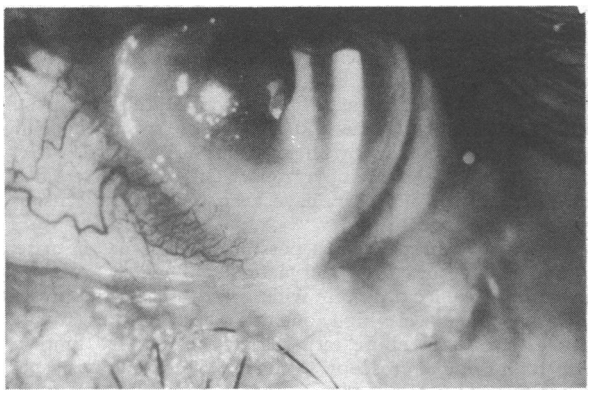
intermittently febrile with episodes of toxic confusion. Her uncorrected visual acuity was 6/36 in each eye. There was considerable hyperaemia of the conjunctivae, which also affected the episclera.

Peripheral corneal melting syndrome was diagnosed by the finding of circumferential, peripheral, corneal ulcers (figure) that were infiltrated with inflammatory cells but appeared avascular.



Circumferential peripheral corneal ulcer highlighted by reflected light.

Investigations showed: haemoglobin 13·1 g/dl, leucocytes $17·8 \times 10^9$/l (neutrophils $15·7 \times 10^9$/l with many immature forms suggestive of a leukaemoid reaction; lymphocytes $2·1 \times 10^9$/l), plasma viscosity 2·19 mPa s (2·19 cp), plasma bilirubin 67 μmol/l (3·9 mg/100 ml), alkaline phosphatase 65 KA units, aspartate aminotransferase 34 IU/l, plasma albumin 24 g/l, globulin 4·1 g/l, serum electrophoresis—raised α_1- and α_2-globulins, normal serum immunoglobulin concentrations, antinuclear factor titre 1/20, DNA binding <1%, HLA type A2, B15 W44. The rheumatoid arthritis latex test was negative and plain radiographs of joints showed no erosions.

She was treated with azathioprine 150 mg daily (body weight 65 kg) and prednisone 20 mg daily. No corticosteroid preparation was applied locally to the eyes. During the next two weeks the eye condition improved. The hyperaemia and infiltration disappeared, the cornea returned to normal thickness, and the ulcers re-epithelialised. The eventual uncorrected visual acuity of the right eye was 6/9 and of the left eye 6/36. After a further two weeks the blood neutrophil count had returned to normal with disappearance of immature forms. Results of liver function tests were also normal.

After six months' observation her psoriasis was controlled on azathioprine alone. There was no recurrence of peripheral corneal melting syndrome and regular blood counts were normal.

CASE 2

A 70-year-old man had suffered from chronic, extensor plaque psoriasis affecting the knees, elbows, sacrum, and scalp for 40 years. For 20 years he had had recurrent peripheral corneal melting syndrome, which was particularly severe in the left eye. Several operations had been necessary. The visual acuity of the left eye was reduced to perception of light only and the right eye could see hand movements. No systemic treatment had been used. He had recently suffered an attack of herpes zoster ophthalmicus on the right eye which seemed to encourage further erosions and marginal activity on the area of donated cornea. Investigations showed that HLA type was A1, A30, B8, B13.

Comment

Peripheral corneal melting syndrome is associated with connective tissue diseases such as rheumatoid arthritis, and psoriasis is associated with joint disease. We suggest that in our two patients the association between psoriasis and peripheral corneal melting syndrome was not coincidental. The first patient had arthralgia with evidence of synovitis, which may have been psoriatic arthritis, though erosions were not shown radiologically. We know of no cases of arthralgia due to generalised erythroderma, but it may be argued that the process (possibly an infection) which triggered this patient's erythroderma was responsible for the arthralgia.

The pathogenesis of peripheral corneal melting syndrome is unclear but corneal damage is probably mediated by collagenases.[2] However, cysteine, acetylcysteine, and penicillamine eye drops seem to be ineffective,[3] while systemic azathioprine and prednisone may produce a valuable response in some patients.[3 4]

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Department of Dermatology, Bristol Royal Infirmary, Bristol BS2 8HW

J M BOSS, MRCP, senior dermatological registrar (present appointment: consultant dermatologist, Gloucester Royal Hospital, Gloucester)

R D G PEACHEY, MD, FRCP, consultant dermatologist

Bristol Eye Hospital, Bristol BS1 2LU

D L EASTY, FRCS, consultant ophthalmic surgeon

West of England Eye Infirmary, Exeter

J THOMSITT, FRCS, consultant ophthalmologist

Vaginal manipulation and anaerobic breast abscesses

Anaerobic breast abscesses occur in non-puerperal women with inverted nipples, the organisms often being commensals of the vagina and oropharynx rather than the bowel.[1] We report three cases in which anaerobes of the vagina were isolated from breast abscesses after gynaecological manipulation.

Patients, methods, and results

Case 1—A 37-year-old Ghanaian woman with two children presented with a left breast abscess three days after hysterosalpingography. The nipple had been inverted for two years. Despite a course of antistaphylococcal antibiotics, drainage on two occasions, and a partial-thickness wedge resection of the affected area the breast continued to discharge foul-smelling pus. Examination of this showed the presence of *Bacteroides bivius* (on three occasions), *B melaninogenicus*, and peptococci. A high vaginal swab grew a mixture of aerobic and anaerobic organisms including *B bivius*, *B melaninogenicus*, and peptococci. Full-thickness wedge resection and metronidazole 400 mg thrice daily for seven days were effective in treating the infection.

Case 2—A 46-year-old Caucasian woman presented with a right subareolar breast abscess that had developed two weeks after dilatation and curettage for menorrhagia and had failed to respond to talampicillin prescribed by her family doctor. Both nipples had been inverted since birth. Foul-smelling pus drained spontaneously and yielded *B bivius*, peptostreptococci, peptococci, and fusobacteria on culture. No anaerobes were isolated from a high vaginal swab, which was taken during a course of metronidazole. The abscess resolved after drainage and metronidazole 400 mg thrice daily for seven days, and had not recurred after 18 months.

Case 3—A 22-year-old Caucasian woman presented with a left breast abscess three weeks after a postnatal vaginal examination. Neither nipple was inverted and she was not breast-feeding. Treatment with flucloxacillin proved ineffective and the abscess discharged spontaneously. Pus grew *B corrodens*, *B bivius*, *B melaninogenicus*, and peptococci. The infection recurred six months later and was treated with eythromycin by her family doctor. No high vaginal swab was taken.

Comment

Anaerobic breast abscess is usually seen in non-puerperal women of childbearing age with an inverted nipple. In two of our patients surgical trauma of the upper vagina and cervical region had occurred, and vaginal examination had been performed in the third during the puerperium.

It has been reported that 10% of bacteraemias occurring in hospital are caused by anaerobes[2] and that even sigmoidoscopy may produce transient *B fragilis* in the blood.[3] Possibly disturbance of the upper vagina in our three cases may have caused a transient bacteraemia. Although the organisms grown may also be present in the oropharynx, our cases would seem to provide circumstantial evidence that they originated from the female genital tract. Inversion of the nipple

due to underlying duct ectasia or chronic breast disease provides a suitable nidus for the deposition of these anaerobes.

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St Thomas's Hospital, London SE1 7EH
R D LEACH, MB, FRCS, honorary senior registrar, surgical unit (now lecturer in surgery, Westminster Medical School)
SUSANNAH J EYKYN, MB, MRCPATH, senior lecturer
IAN PHILLIPS, MD, MRCPATH, professor of microbiology

Treatment of biliary duct stones with a terpene preparation

Biliary duct stones are often found in patients who present with gall-bladder disease and are poor surgical risks. Retained stones may persist after cholecystectomy, despite recent developments in non-operative methods of extraction and in-situ litholytic agents. When facilities for endoscopic papillotomy are lacking, reoperation is contraindicated or further procedures refused, and spontaneous passage is unlikely on grounds of stone size, an alternative approach is needed. We used Rowachol (Rowa Ltd, Bantry, Ireland), a monoterpene mixture with cholelitholytic potential.[1]

Patients, methods, and results

We treated nine female and two male patients with radiotranslucent ductal stones of a diameter greater than 7 mm and absent, infrequent, or mild symptoms (group 1) and four postoperative patients with retained stones, whose elective reoperations were either refused or considered to be undesirable (group 2). Endoscopic papillotomy was not available at the start of the study. In group 1 three patients had previously undergone cholecystectomy and three had, or developed, non-functioning gall bladders.

Maintenance dosage of Rowachol was with three capsules daily (some patients started at higher doses); symptoms and liver function were monitored six-weekly. Intravenous cholangiography was repeated after six and 12 months.

Treatment was well tolerated, a slightly sore mouth in one case being the only side effect. Results of liver function tests remained normal in six patients and improved in four asymptomatic patients with initially abnormal values. Five patients developed transient abnormalities after attacks of colic or jaundice.

The two male patients were withdrawn, one after five months when surgery was recommended for increasing colic and jaundice, the other after seven months on his death from cardiac infarction. Thirteen patients, all female, took Rowachol for one year or until the stone dissolved, if this was earlier. One of these had bile-duct dilatation and recurrent jaundice; after repeated advice she eventually accepted surgery, but at cholecystectomy no duct stones were found. The table shows details of gall-stone dissolution. One patient is not included because inadequate radiography precluded assessment. Of the four non-responders, two had large calculi after cholecystectomy 30 years previously.

Comment

The results of treating common bile duct stones with Rowachol are encouraging and compare well with published results obtained using bile-acid treatment. The best reported success rate achieved using chenodeoxycholic acid is five out of eight cases (62·5%),[2] but other series of patients have fared less well. Bateson *et al* had only one success in 10 cases and reported a high incidence of severe symptoms.[3] Most of our patients presented with biliary symptoms, but only two required surgery during treatment with Rowachol, which suggests that the antispasmodic properties of the constituent terpenes[4] may be of value. Rowachol also has the advantages of low cost and virtual absence of side effects. Thus, when other treatments for ductal stones are unacceptable or impracticable and long-term medical treatment is indicated, we suggest that Rowachol should be used, possibly in combination with small doses of chenic acid, which is our present practice. Such management in no way precludes subsequent definitive treatment by surgery or other methods should this become available or desirable; indeed, two of the patients described above subsequently underwent endoscopic papillotomy.

Response of biliary duct stones to treatment with Rowachol

Duration of treatment	No of patients treated	No with partial dissolution†	No with complete disappearance	Response rate
6 months	13	2	4	6/13 (46%)
12 months	12*	2	6	8/12 (67%)

*Includes patients treated for less than 12 months but until the stones disappeared.
†Reduction in size or number of stones.

The reasons why Rowachol should be more successful in ductal than gall-bladder[5] disease are not clear. A flushing effect of the choleresis for which Rowachol is marketed may be contributory.

Full details of the patients and the results of liver function tests are available on request from Dr G D Bell, University Department of Therapeutics, City Hospital, Nottingham NG5 1PD.

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University Department of Therapeutics, City Hospital, Nottingham NG5 1PD
W R ELLIS, MA, MRCP, research fellow and honorary senior registrar
G D BELL, MD, MRCP, senior lecturer

Adjunct to bile-acid treatment for gall-stone dissolution: low-dose chenodeoxycholic acid combined with a terpene preparation

Chenodeoxycholic acid is an established treatment for cholesterol gall stones. Bile is desaturated by reducing the output of cholesterol relative to bile acids; possible mechanisms of action include inhibition of hepatic S-3-hydroxy-3-methylglutaryl coenzyme A reductase (HMGR), the rate-limiting enzyme for cholesterol synthesis.[1 2]

The recommended dose of chenodeoxycholic acid (15 mg/kg/day) causes diarrhoea in one-third of cases; reduction in dosage may alleviate this problem, but treatment is ineffective in doses of under 500 mg daily.[1] When full dosage is tolerated response rates are poor in obese patients and when stone diameter exceeds 15 mm.[2] A further serious disadvantage of chenodeoxycholic acid is its cost (over £600 per year for a 70 kg man at 15 mg/kg/day). Adjuvant treatments such as phenobarbitone, β-sitosterol, and restriction of dietary cholesterol have hitherto either failed to increase the efficacy of chenodeoxycholic acid (and thus reduce cost and side effects) or given only marginal benefit.[1]

Rowachol (Rowa Ltd, Bantry, Ireland) is a well-tolerated, inexpensive preparation containing six cyclic monoterpenes: it inhibits hepatic HMGR,[3] alters biliary cholesterol saturation,[4] and can dissolve gall stones but is more effective in low than high dosage.[4 5] This may reflect differences in the effects of individual constituent terpenes on HMGR.[3] We report our experience of using Rowachol in combination with a small (and hence on its own probably ineffective)[1 2] dose of chenodeoxycholic acid in an unselected series of patients with gall stones.