The blood culture grew *Escherichia coli* O75—about 30 organisms/ml, sensitive to gentamicin, tetracycline, and co-trimoxazole but insensitive to ampicillin and cephalosporins—and a microaerophilic streptococcus, Milleri group F—sensitive to penicillin, tetracycline, erythromycin, and co-trimoxazole. The same organisms were isolated from the high vaginal swab and placenta. The placenta also grew *Staphylococcus aureus*. Microscopy of the placenta showed that the decidual tissue was infiltrated with polymorphs.

Her fever fell rapidly after the uterus had been emptied and she was able to be discharged home after a few days.

Comment

E. coli septicaemia in association with septic abortion in Gravigard users has been reported in the USA.^{2,3} The cervical appendage of the Gravigard consists of a single monofilament nylon thread, in contrast to the Dalkon shield, which has a tail of many multifilaments contained within an outer nylon sheath. Bacteria may be found inside this sheath between the multifilaments and it has been suggested that bacteria can ascend by a wick action and exit into the uterine cavity.⁴ Nevertheless, the recent reports of sepsis with other devices suggest that bacteria can gain access to the cavity other than along the inside of multifilamentous tails. Preliminary reports of a hysterectomy study in progress at the University of Southampton have shown that all tailed IUCDs, both monofilamentous and multifilamentous, lead to the presence of a few bacteria in the uterine cavity.⁵ These are similar to the vaginal flora. Bacteria have not been found in the cavities of the few tail-less IUCD users studied so far.

Bacteria can ascend the outside of monofilamentous tails as well as any route along the inside of multifilamentous tails. Therefore, all patients with IUCDs should be advised to seek early confirmation of any suspected pregnancy. Consideration should be given to removing the device early in the pregnancy. If there is any difficulty in removal, the threads should be cut as short as possible.

We thank Dr Graham and the Department of Microbiology at the Royal Hampshire County Hospital, Winchester.

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Diabetes in identical triplets

Studies on identical twins have helped to throw some light on the relative contribution of genetic and environmental factors concerned in the aetiology of diabetes mellitus. Despite the accumulation of several hundred twin pairs, a search of published work has disclosed no cases of identical triplets who are concordant for diabetes. The Joslin Clinic does report a set of identical triplets, two of whom are diabetic.¹

We have recently had the opportunity to study such a set of triplets.

Patients

The triplets were born in Dublin in 1921 of Irish parents who were awarded the King's Bounty. Introduced by Queen Victoria in 1847, this was a sum of money paid to the parents of triplets or quadruplets and was

probably one of the last such awards to be made in Ireland. They have a similar environmental as well as genetic background, genetic similarity being confirmed on HLA and blood-group typing (O-positive, A₂A₃B12 BW40). There is no family history of diabetes mellitus.

The first triplet was diagnosed in 1964 (blood sugar concentration 15 mmol/l (270 mg/100 ml)); the second in 1971 (18 mmol/l (324 mg/100 ml)); and the third in 1976 (15 mmol/l (270 mg/100 ml)). Examination in 1976 showed background retinopathy in the first and third, though not in the second, confirmed on retinal photography. No other abnormality was noted and all were controlled on diet and oral drugs. The results of investigations including full blood count, profile (U + E and liver function tests), and measurements of the serum iron concentration and total iron binding capacity were all normal. Tests for pancreatic acinar and islet-cell antibody, thyrogastric, smooth-muscle and mitochondrial antibody, and antinuclear factor were all negative.

Factors concerned in assessing frequency of diabetic identical triplets

Frequency of triplets	1/6400 births
Identical triplets ¹	15% triplets
Perinatal mortality ² (triplets)	353/1000 births
Mortality 4 weeks—1 year ³ (triplets)	40/1000
Chance of survival 1—55 years for all three (Expectancy Life Tables, 1931)	88%
Chance of developing clinical diabetes	1%

The factors concerned in assessing the frequency of diabetic triplets are listed in the table. If the likelihood of developing clinical diabetes is taken as 1% and concordance for diabetes is assumed⁴ the frequency of male identical triplets of 55 with diabetes is 1 in 25 000 000. The male population over 55 in the UK is 6 000 000, which makes this an extremely rare event.

Discussion

The subject of diabetes mellitus in identical twins has been well studied.^{4,5} It has been shown that almost all twins diagnosed over the age of 40 are concordant for diabetes and half have a diabetic parent. The average time between diagnosis in such twins is 2.6 years and no association has been shown with any HLA type or with the presence of islet-cell antibody. The triplets fit well into this pattern. They are typical maturity-onset diabetes and concordance has been shown, although there is no family history of diabetes. They have none of the HLA types associated with juvenile-onset diabetes (B8 BW15 B18) and, although there is an association between HLA-A3 and haemochromatosis, their serum iron concentration and total iron-binding capacity are normal.

Perhaps surprisingly, there were 12 years between diagnosis of the first and last triplets, but the onset of diabetes is notoriously difficult to date. The first triplet diagnosed was asymptomatic and may not have developed symptoms for some years. The last triplet was appreciably lighter at diagnosis than the other two and this may have delayed the onset of symptoms; indeed, the finding of microaneurysms at the time of diagnosis does suggest that he had been diabetic for considerably longer than his symptoms of two months suggested.

The strong family history and high rate of concordance for diabetes found in the twin studies reinforce the view that genetic factors are dominant in the aetiology. The failure to demonstrate association with HLA type suggests genetic heterogeneity.

In summary, we report identical triplets concordant for diabetes for the first time and show them to fit into the pattern expected from the identical twin studies.

We should like to acknowledge the helpful comments of Dr D A Pyke; the triplets have been included in the British Diabetic Association twin study.

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