SHORT REPORTS

Evidence against genetic factors causing major loss of embryos

A report of a high incidence of genetic abnormality after in vitro fertilisation[1] led to a suggestion that the apparently low fecundity in man[2] may be partly explained by a high incidence of loss of embryos due to genetic factors. Data from induction of ovulation in patients with hypogonadotrophic hypogonadism, however, suggest that a high incidence of conception may be achieved.[3] Advances in ultrasound monitoring of ovarian function during induction of ovulation now permit more accurate assessment of data on conception.

Patients, methods, and results

Evidence relating follicular size with maturity was obtained from nine spontaneous conception cycles, which were studied by daily measurement of plasma hormone concentrations (oestradiol, progesterone, luteinising hormone, and follicle stimulating hormone) and frequent ultrasound examinations. The plasma hormone concentrations and follicular diameters were identical with our laboratory normal data similarly derived from 16 volunteers. Ultrasound measurements during the periovulatory period (days -1, 0, and $+1$; day 0 was when peak luteinising hormone concentrations occurred) showed that in all nine cycles follicular diameters of at least 20 mm were achieved. Mean (SD) diameters were 18·4 (2·4) mm on day -1; 20·6 (1·8) mm on day 0, and 21·1 (2·9) mm on day $+1$. The lower limit on day 0 was 17 mm.

Follicular growth and ovulation were induced with exogenous gonadotrophins in 11 consecutive hypogonadotrophic patients. Follicular growth, induced by daily administration of human menopausal gonadotrophins, was monitored by rapid (two hour) assays of plasma oestradiol concentrations and ultrasound estimations of the diameters and numbers of developing follicles. Human chorionic gonadotrophin was administered when one, two, or three mature follicles were seen. (A follicle was defined as mature if its diameter was >17 mm when oestradiol concentrations were consistent with the number and size of all follicles present.)[4] Patients were advised that coitus should occur 24-48 hours after the injection of human chorionic gonadotrophin. The table shows the number of courses of treatment required to achieve conception and the number and sizes of mature follicles present when human chorionic gonadotrophin was administered. The incidence of pregnancy was high, with 12 conceptions in 11 patients, who received 15 courses of treatment.

Data on hypogonadal patients treated with exogenous gonadotrophins to induce ovulation

Case No	Treatment course No	Diameters of mature follicles (mm)	No of conceptions
1	1	24	1
2	1	21·5, 20	1
3	1	22	1
4	1	20·5	1
5	1	18	1
6	1	19·5, 18·5, 17·5	2*
7	1	21, 21·5	
	2	21	
	3	22, 20·5	1
8	1	20, 19·5	1
9	1	20	1
10	1	18·5, 18·5	
	2	19·5	1
11	1	21	
	2	23	1
Total Nos	15	22	12

*Heterozygous twins.
Cases 1-10 delivered normal children.

Comment

Assuming that all mature follicles released their ova after administration of human chorionic gonadotrophin, there was a maximum loss of 10 out of 22 embryos (45%). Factors contributing to such loss may include failure of: egg maturation, release from the follicle, migration, fertilisation, effective coitus and insemination, and implantation due to both genetic and non-genetic factors. Loss of embryos after short term implantation was not confirmed by plasma hormone analyses (steroid and human chorionic gonadotrophin) in the four cycles in which conception did not occur. Data from cycles in which conception did occur showed that 12 conceptions resulted in 11 patients with 16 mature follicles (maximum embryo loss 25%). These incidences of conception are higher per cycle and per mature follicle than in the natural cycle[2] and indicate a relatively low incidence of loss of embryos in vivo due to genetic or other reasons.

The technique of in vitro fertilisation eliminates the failure of release and migration of ova and can ensure high incidences of fertilisation. Provided that control of ovarian function and the processes of maturation and capture of ova are efficient and have low morbidity, improvements in techniques of embryo replacement should permit much higher fecundity than in the natural cycle. The quality of spermatozoa remains a major factor, but extensive data on in vitro fertilisation with sperm from men with abnormal semen analyses will show whether there is an increased loss of embryos due to genetic factors among these patients.

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Treatment of acute scrotal pain

It has been axiomatic that all acutely painful testes in which there are no obvious symptoms of urinary tract infection should be explored.[1] Recently, advanced methods of diagnosis have been used in this condition such as ultrasound, radioisotope scanning, and Doppler studies of the testicular vessels. It has been claimed that these are all helpful in the diagnosis and will prevent unnecessary surgery. We believe that these lead only to procrastination and increased risk of infarction of the testis or its appendages. We have reviewed the cases of acute scrotal pain which presented in 1983 to St James's University Hospital, Leeds, where a policy of urgent surgical exploration is in being. We feel that the results amply justify this policy.

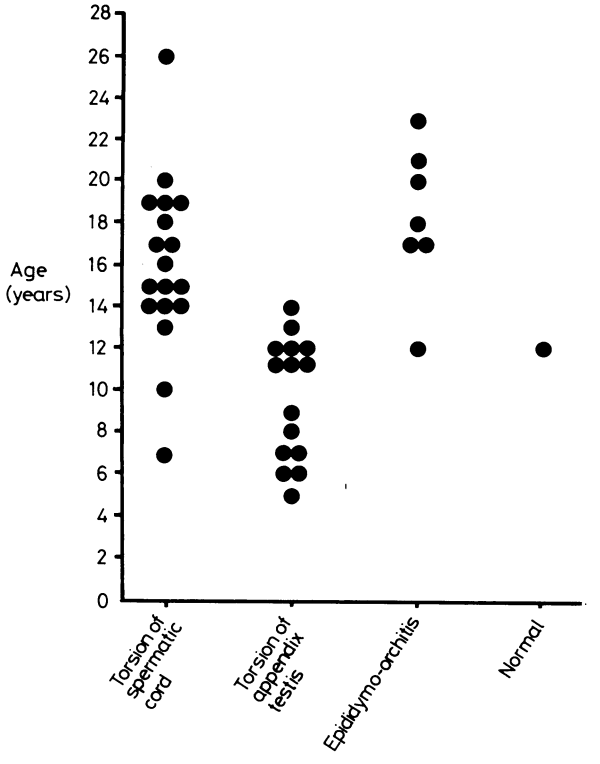
Cases and results

A total of 41 boys and men with acute scrotal pain was seen in 1983. The age range and operative diagnoses are shown in the figure. There was a striking separation in the ages of those with a diagnosis of epididymo-orchitis and those with torsion of the appendix testis but this was less so with the important torsion of the spermatic cord, where the clinical diagnosis is often in doubt.

After surgery there was minimal morbidity and the length of stay was short. Ten of the 15 patients with torsion of the testicular appendix were discharged at 24 hours, as were six of those 18 with true testicular torsions; a further five and six, respectively, were discharged at 48 hours. All of the patients with testicular torsion had gone home at 72 hours, the criterion being that they should be pain free. Only in cases of epididymo-orchitis where patients had persistent fever did they stay longer and all had been discharged by the sixth day after operation. There were no wound infections and the only incident was of a child developing tonsillitis 24 hours after a successful reduction of torsion of the testis.

Comment

The results of this study re-emphasise that the cause of acute scrotal pain cannot be diagnosed on the basis of age. The clinical diagnosis is difficult and can be made with certainty only at operation. As the viability of the testis is measured in hours, any delay increases the risk of infarction and cannot be justified—even if diagnostic aids such as Doppler flow and scintigraphy occasionally prevent unnecessary operations. Torsion of the spermatic cord and the testicular appendages is often diagnosed as epididymo-orchitis and treated with antibiotics. There is no place for a therapeutic trial. In boys aged under 14 the diagnosis of epididymo-orchitis is so uncommon that it should not be entertained without exploration.



Diagnosis and age distributions of patients presenting with acute scrotal pain.

In our hospital all males under the age of 25 presenting with acute scrotal pain undergo surgery, unless a midstream urine specimen can be obtained immediately and organisms are found. Urgent surgery resulted in no appreciable morbidity, as shown by others,[2] a short hospital stay, accurate diagnosis, and rapid alleviation of symptoms. All these advantages were particularly true in torsion of the appendix testis, where symptoms are promptly relieved by surgery, and where failure to diagnose and treat correctly may lead to infertility.[3]

It is mandatory for all patients with acute scrotal pain to be explored. The alternative is castration by neglect.[4]

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Assessment of gastric cancer by laparoscopy

In most countries gastric cancer has a poor prognosis with a crude five year survival of 4-15%.[1] Only about 21-58% of the cancers are resectable,[1] and it seems illogical to subject all patients to full exploratory laparotomy. Furthermore, laparotomy has a high incidence of complications[2] and appreciable mortality, ranging from 14% to 28%.[2 3] Laparoscopy is a relatively minor procedure, which may have a role in the assessment of gastric cancer. It would seem to be particularly useful in patients with incurable lesions that are not causing obstruction.

We present our own experience with laparoscopy in patients with gastric cancer.

Patients, methods, and results

We studied 46 consecutive patients (33 men, 13 women) with histologically proved adenocarcinoma of the stomach. In two a mass suggested inoperable cancer and the examination was used to obtain objective proof. Laparoscopy was carried out under general anaesthesia. Both forward and side viewing techniques were used to obtain an optimum view of the peritoneal cavity. Biopsy specimens of metastases of the liver or peritoneum were taken under direct vision with a needle or biopsy forceps through a second puncture site. A tumour was deemed incurable if there were liver metastases or visible transperitoneal spread. No attempt was made to enter the lesser sac with the laparoscope as the degree of posterior fixity of a tumour is difficult to assess.

There were no deaths, and morbidity was minimal. A few patients developed subcutaneous emphysema. In one case the Verres needle penetrated the transverse colon. This was recognised immediately and was repaired without further complications.

No metastases were found in 19 patients, of whom 18 subsequently underwent laparotomy and one declined. Gastrectomy was undertaken in 16, but in two major posterior extension of the cancer prevented resection, and we performed palliative gastrojejunostomy.

Of the 27 patients with incurable disease, most had extensive lesions precluding palliative distal gastrectomy and were treated symptomatically. Seven were referred to a medical oncologist and given cytotoxic chemotherapy as part of a trial of new chemotherapeutic agents. Six underwent endo-oesophageal intubation using an endoscopic technique. Two patients subsequently developed gastric outlet obstruction and required palliative gastroenterostomy.

Comment

Although the laparoscope is often regarded as a gynaecological instrument, it is used increasingly by general surgeons. Unfruitful laparotomy was avoided in more than half our patients, who suffered little discomfort. Symptoms other than weakness were usually easily controlled. In patients with an obstructing lesion at the cardia laparoscopy was a convenient preliminary to endoscopic intubation under the same anaesthetic. Laparoscopy was surprisingly accurate. The false negative results were due to posterior extension of the tumour. In our opinion this can only be assessed at laparotomy, and even then it may be difficult to differentiate between inflammatory and malignant adherence to the pancreas.

We conclude that laparoscopy is a useful method for the assessment of gastric cancer and allows easy biopsy, particularly of peritoneal deposits. Unnecessary laparotomy is avoided and the morbidity of the procedure is minimal.

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