cortisol concentration was 3174 nmol/l (115 µg/100 ml) at 9 am and 2981 nmol/l (108 µg/100 ml) at midnight, while there was no suppression after giving 8 mg dexamethasone. Bronchoscopy showed a tumour of the left upper lobe bronchus. His condition rapidly deteriorated, and he died six weeks after admission. Necropsy showed an oat cell carcinoma of the left upper lobe bronchus with widespread metastasis. Both adrenals were twice normal size because of diffuse cortical hyperplasia. The pituitary was normal. There was no evidence of lymphoma, leukaemia, or myeloma.

Discussion

In idiopathic late-onset immunoglobulin deficiency there is usually an interval of several years before the malignancy develops,² whereas in this patient both conditions presented together. Agammaglobulinaemia may complicate lymphoma, chronic lymphatic leukaemia, and myeloma but is not a feature of other malignancies. The exact relationship, if any, between the malignancy and the immune deficiency in this patient therefore remains obscure.

Since side effects from corticosteroids are so common it was assumed at first that they were partly responsible for both his oedema and hypokalaemia. In retrospect clearly this was not so: the severity of the metabolic upset was out of keeping with the 7-mg dose of prednisolone he was receiving. The biochemical and histological changes were typical of ectopic ACTH-production, as was his rapid deterioration.³ It is important to remember that, although drugs may cause many diseases, in each case alternative aetiologies should also be considered.

I thank Dr P W R Harris for permission to report this case; Dr P Forgacs, who kindly performed the respiratory function tests; Mr A R Makey for the bronchoscopy; and Dr Max Millard for the necropsy.

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(Accepted 8 December 1977)

Bromley Hospital, Bromley, Kent

PETER CROME, MB, MRCP, medical registrar (present address: Guy's Hospital, London SE1 9RT)

Management of cervical pregnancy with circumssuture and intracervical obturator

A gynaecologist may encounter a cervical pregnancy only once or twice in his professional lifetime, but there is no knowing at what stage of his training the first time will be. The inexperienced may be taken aback at the very considerable haemorrhage that can occur in such a case and the technique we describe in the following history is of value, not only as a first-aid measure, but also as a definitive treatment which aims at avoiding hysterectomy.

Case report

A 22-year-old unmarried foreign girl was referred to a private nursing home for termination of pregnancy on psychiatric grounds, having had 12 weeks' amenorrhoea at the time. Her only previous pregnancy had been terminated at eight weeks, two years before. At operation a soft pelvic mass the size of a 12-week pregnancy was found pushing the uterine body, a small firm mass, upwards and forwards. A thin effaced external cervical os was found to admit a finger and the pregnancy was terminated by aspiration. A large haemorrhage of about 2 l occurred, and digital examination, which disclosed a cavernous cervical canal with a closed internal os, enabled a diagnosis of cervical pregnancy to be made beyond doubt. The cervical canal and vagina were securely packed with gauze, a replacement blood transfusion was given, and the patient was transferred to the local district general hospital.

On the second postoperative day, under general anaesthetic, the packs were removed and a measured blood loss of 2550 ml ensued. This was halted by inserting a 35 FG (11.14 mm diameter) stiff polyethylene Argyle sucker tube into the cervical canal and compressing the cervix against this by a 5-mm

mersilene Shirodkar-type circumssuture, inserted according to McDonald's technique, as high and as tightly as possible. (Even despite the tightness there was a tendency for the polyethylene obturator to slip out, and so it was tacked to the cervix with a silk stitch.) A further blood transfusion was given.

On the thirteenth postoperative day (the eleventh after the second operation) the obturator and circumssuture were removed, but a further blood loss of about 500 ml occurred shortly afterwards and they were replaced. The obturator was finally removed 31 days after its first insertion and the patient, who suffered no further bleeding, was discharged with the circumssuture *in situ* a few days later. She was instructed to avoid intercourse for the next three months, after which time the circumssuture was removed. The cervix was reported to appear normal at this time and the patient was menstruating regularly.

Comment

Most authorities recommend immediate hysterectomy in the management of cervical pregnancy, certainly for all cases of over eight weeks' menstrual age.¹ Successful cases of conservative management have been reported,^{2,3} but in none of these was the bleeding of the torrential quantity that we encountered. We report our technique simply because it enabled us to avoid hysterectomy.

Several writers state that cervical pregnancy has been preceded by cervical trauma and specifically by therapeutic abortion,^{4,5} as in this case. It has even been suggested that the incidence may rise from about 1:16 000³ to as many as 1:1000 in communities where a liberal abortion policy is practised.⁵ Presumably a fertilised ovum failing to implant in the endometrium nevertheless finds an attractive nidus within a scarred cervical canal.

This being the case, the above technique, and the understanding that stitch and obturator must be left undisturbed possibly for several weeks, may have a useful place in modern gynaecological practice.

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(Accepted 6 December 1977)

Department of Gynaecology, Kingston Hospital, Kingston-upon-Thames, Surrey KT2 7QB

J WOODFORDE SCOTT, FRCS, MRCOG, registrar (present address: Westminster Hospital, London SW1P 2AP)

P L C DIGGORY, FRCS, FRCOG, consultant

Richmond Clinic, East Twickenham, Middlesex TW1 2AR

P J EDELMAN, MRCOG

Contralateral renal artery fibromuscular dysplasia after nephrectomy for renal artery stenosis

Progression of fibromuscular dysplasia of the renal artery in patients presenting with hypertension due to this condition is common.¹ It usually occurs at a site already affected, and we have found no reports of new lesions arising in an unaffected renal artery. We report this sequence of events in a young woman and the problems of management that it caused.

Case report

Our patient was aged 18 when she was admitted to hospital in 1974, complaining of headaches for three weeks. Hypertension during pregnancy

a year earlier had settled and an oral contraceptive had been prescribed (ethinyloestradiol 50 µg and norethisterone acetate 1 mg). Blood pressure was 240/150 mm Hg; there was a haemorrhage in the right fundus; and a trace of proteinuria. Serum creatinine was 80 µmol/l (0.9 mg/100 ml). An intravenous urogram and isotope renogram showed delayed excretion on the left side. The left kidney was 12.5 cm long and the right 13.5 cm long. Renal arteriography (see figure) showed narrowing at the trifurcation of the left renal artery and a normal right renal artery. Renal vein plasma renin activity was 628 pmol/l/min (805 ng/l/min) on the left and 452 pmol/l/min (579 ng/l/min) on the right during recumbency, rising to 908 and 494 pmol/l/min respectively (1164 and 633 ng/l/min) on tilting the head up. Ex-situ repair of the vessel followed by autotransplantation was planned.

Renal arteriograms (a) in 1974 at first presentation and (b) in 1977 when hypertension recurred.

The kidney was removed, and a good length of artery and vein was preserved to allow reimplantation. Attempts to cool the kidney by perfusion were unsuccessful because of a very poor flow rate despite high perfusion pressure, and external cooling was applied. The wall of the artery was grossly thickened at its trifurcation and the branches were very small. The finest probe could not be passed through the narrowed area and no dilatation or reconstruction was possible. The kidney was therefore not reimplanted and the operation was concluded as a nephrectomy.

Histological examination showed fibrous thickening of the outer part of the media, intimal thickening, reduplication of the internal elastic lamina, and abnormal arrangement of elastic fibres in the media. These changes approximated most closely to the type designated perimedial fibroplasia.²

Blood pressure returned to normal without treatment within four days of surgery and remained so at review in February 1977. In April 1977 she again complained of headache, her blood pressure was 190/130 mm Hg, and a loud continuous bruit was audible in the epigastrium to the right of the mid-line. A right renal arteriogram (see figure) showed a tight stenosis at the bifurcation with post-stenotic dilatation of the lower branch, strongly suggestive of fibromuscular dysplasia of the artery. Blood pressure control was satisfactory at 160/100 mm Hg lying and 140/90 mm Hg standing, and renal function was stable, with serum creatinine 110 µmol/l (1.2 mg/100 ml) on treatment with methyl dopa, a thiazide diuretic, and propranolol.

Comment

This sequence of events emphasises the importance of conserving renal tissue in the surgical treatment of renal artery stenosis.³ The problems posed by the progression of fibromuscular dysplasia have been discussed,⁴ but they are not usually so acute as those presented in our patient. Because about 20% of operations to correct renal artery stenosis fail, often with loss of the kidney,⁵ the problem we have described will inevitably arise from time to time. The advantages of successful surgery for renal artery stenosis outweigh the risks in the young patient with two kidneys, especially in women with the prospect of pregnancy. When one kidney is already lost, however, surgery seems

justifiable only if the blood pressure cannot be controlled or renal function deteriorates.

We thank Dr P M Hacking for radiological help and Dr M Lesna for histology. We are grateful to Mrs R Grieve for secretarial help.

Requests for reprints should be addressed to Dr R Wilkinson.

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(Accepted 8 December 1977)

Departments of Medicine and Surgery, Royal Victoria Infirmary, Newcastle upon Tyne NE1 4LP

E O P JONES, MB, MRACP, Commonwealth medical fellow

R WILKINSON, BSC, MRCP, consultant physician

R M R TAYLOR, CHM, FRCS, consultant surgeon

Seasonal variation in serum 25-hydroxycholecalciferol concentrations in elderly South African patients with fractures of femoral neck

Studies in Britain have shown a pronounced seasonal variation in serum 25-hydroxycholecalciferol (25-OHD₃) concentrations, the values being lowest in late winter.¹⁻³ Explanations include lack of exposure to ultraviolet light because of decreased hours of sunshine, the low angle of the sun to the horizon, increased atmospheric pollution, and the fall in daily temperature.

Johannesburg (altitude 1765 m, latitude 26°2'S) has large amounts of sunshine throughout the year. We therefore thought that there might be little seasonal variation in serum 25-OHD₃ concentrations and that low concentrations would be uncommon. We examined this further by analysing monthly serum 25-OHD₃ concentrations in elderly South African patients with fractures of the femoral neck.

Patients, methods, and results

Serum concentrations of 25-OHD₃ were measured in 232 elderly patients (mean age 72.7 ± SD 13 years) with fractures of the femoral neck between July 1975 and December 1976. Blood was taken as soon as possible after admission, and the serum stored at -20°C until assayed in batches using a competitive protein-binding technique.⁴ Interassay variation was 3.6%. Mean daily hours of sunshine and mean daily temperature in Johannesburg for each month of the study period were obtained from the weather bureau, Pretoria.

The mean serum 25-OHD₃ concentration for the whole group was 44.3 ± SD 23 nmol/l (17.7 ± 9.2 ng/ml). Individual values were highest in the summer and autumn months of November 1975 to June 1976, when the mean value was 51 ± 26.9 nmol/l (20.4 ± 10 ng/ml). The mean value for June to October 1975 and July to December 1976 fell significantly ($t=4.55$; $P<0.001$) to 38.1 ± 17 nmol/l (15.25 ± 6.8 ng/ml), and 14.4% and 21.5% of the patients had serum 25-OHD₃ values below 25 nmol/l (10 ng/ml) for these two periods respectively (figure).

Mean daily hours of sunshine for each month varied little during the study period, and the overall mean was 8.6 h/day. The late summer and autumn months of January to May 1976 had the least sunshine (mean 7.1 h/day). Mean daily temperatures fluctuated little during the spring, summer, and autumn (mean 17.0°C). The lowest mean temperatures were recorded during May to August 1976 (mean 10.4°C).

Comment

These patients had a significant increase in serum 25-OHD₃ values during the late summer and autumn, which have the least sunshine but the highest daily temperatures. Their values fell with the