TABLE V—Wound sepsis correlated with operative bacteriological findings

	Organ sterile, subcutaneous tissue sterile or not taken	Organ infected, subcutaneous tissue sterile or not taken	Organ and subcutaneous tissue infected
Number of cases	61	71	13
No (%) of cases of wound sepsis	6 (9.8)	17 (23.9)	7 (53.8)

OTHER SEPSIS

The incidence of sepsis in sites other than the wound was examined with particular reference to septicaemia, intraperitoneal abscesses, and serious chest complications. The single death from septic shock occurred after cholecystectomy alone, and there was one other case of septicaemia in this group and one after cholecystectomy and appendicectomy. Intraperitoneal abscesses developed in three patients after cholecystectomy alone and in four after cholecystectomy with appendicectomy. Serious chest infections occurred in 10 patients who had the single operation and in 11 who had an appendicectomy also. There was no significant difference in the incidence of any of these complications between the cholecystectomy group and those who had an appendicectomy as well.

Morbidity was also assessed by the number of days after operation that the patients spent in hospital. The mean number after cholecystectomy alone was 13.13 (SD 6.18) and after cholecystectomy plus appendicectomy 12.08 (SD 5.44). These means did not differ significantly ($t=1.33$). In many patients, particularly the elderly, discharge from hospital was delayed by social factors.

Discussion

Patients were not allocated to the groups randomly. The decision to take out the appendix was made by the operating surgeon and depended on factors such as his personal preference, the age of the patient, and the ease with which the gall bladder was removed. Occasionally a patient made a special request that the appendix should be removed, and this was normally granted. In no case was the incision extended to allow appendicectomy, and if the organ could not be delivered by gentle finger dissection the appendicectomy was abandoned.

We would have expected more wound sepsis after cholecystectomy alone, as more of the gall bladders in this group were inflamed. Over a third of the gall bladders removed without the appendix were inflamed or infected, compared with fewer than 12% of those accompanied by an incidental appendicectomy. The results, however, proved otherwise. When the wound was not protected by cephaloridine the sepsis rate when the appendix was removed incidentally was 41.1% compared with 16.1% when it was not removed.

The higher proportion of old people in the cholecystectomy-alone group might be thought to be an additional hazard,⁹ although we have recently shown³ that old age alone has no importance as a cause of wound sepsis, and in this series the sepsis rate was slightly (but not significantly) lower in old people.

Norton *et al.*¹⁰ compared the incidence of wound sepsis in patients undergoing a laparotomy for abdominal trauma with or without incidental appendicectomy and found a 7% incidence with and a 17% incidence without appendicectomy. They pointed out, however, that appendicectomy was much more likely to be performed when the laparotomy showed no serious intra-abdominal injury, and the series was therefore considerably biased. Komorn and Kaufman¹¹ found that the addition of appendicectomy to cholecystectomy increased the wound sepsis rate, whereas Lowery and Lenhardt¹² and Bogart and Sebesta¹³ did not confirm this.

All these studies suffer from the disadvantage of being retrospective, and the occurrence of wound sepsis (especially if it is late or minor) is often omitted from routine hospital notes. Our findings, based on prospective trials of methods of preventing surgical sepsis, showed that the addition of appendicectomy increases the risk of abdominal wall contamination and, in the absence of an effective antibiotic prophylactic regimen, the risk of sepsis.

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References

- Hewitt, D, Milner, J, and le Riche, W H, *Canadian Medical Association Journal*, 1969, **100**, 1075.
- Howie, J G R, *Scottish Medical Journal*, 1968, **13**, 72.
- Pollock, A V, Leaper, D J, and Evans, M, *British Journal of Surgery*, in press.
- Evans, C, and Pollock, A V, *British Journal of Surgery*, 1973, **60**, 434.
- Evans, C, Pollock, A V, and Rosenberg, I L, *British Journal of Surgery*, 1974, **61**, 133.
- Pollock, A V, and Rosenberg, I L, *British Medical Journal*, 1974, **2**, 558.
- Pollock, A V, and Evans, M, *British Journal of Surgery*, 1975, **62**, 292.
- Pollock, A V, and Evans, M, *Journal of Antimicrobial Chemotherapy*, 1975, **1**, Suppl, p 71.
- Davidson, A I G, Clark, C, and Smith, G, *British Journal of Surgery*, 1971, **58**, 333.
- Norton, L W, Sweeney, M, and Eiseman, B, *British Journal of Surgery*, 1975, **62**, 487.
- Komorn, H, and Kaufman, L W, quoted by Norton *et al.*¹⁰
- Lowery, C H, and Lenhardt, H F, *Archives of Surgery*, 1963, **85**, 476.
- Bogart, J N, and Sebesta, D G, *American Surgeon*, 1969, **35**, 650.

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SHORT REPORTS

Relevance of race in management of testicular tumours

Biopsy is usually regarded as contraindicated in cases of suspected malignancy of the testis because of the high risk of local recurrence and metastatic spread.¹ Most such patients, therefore, are subjected to orchidectomy.² Nevertheless, I suggest that limited biopsy should be used when the patient is from an ethnic group in which the prevalence of testicular cancer is low.

Present series

In a six-year period some 7500 surgical specimens from Nigerian Igbo were examined at a central laboratory. Of these, 21 were testicular samples

—five biopsy specimens and 16 orchidectomy specimens—sent in by 16 doctors from 12 hospitals.

Of the five biopsy specimens, two appeared to be normal, and three showed evidence of Leydig-cell tumours, tuberculosis, and infarction respectively. Three of the 16 orchidectomy specimens were normal. Of the remainder, nine showed evidence of granulomatous orchitis—five idiopathic, two tuberculous, and two schistosomal; two embryonal carcinoma; one metastatic lymphoma; and one fibrous pseudotumour of the testicular tunic.

Comment

Only three of the 21 testicular samples in this series showed evidence of primary cancer, two being orchidectomy specimens. This reflects the low prevalence of testicular cancer in Negroes.^{1 3 4} Thus although orchidectomy is mandatory for patients whose ethnic origins indicate a high likelihood of testicular cancer, it should not be performed routinely on Negroes. Biopsy should be the rule.

Initial management, however, should vary with local experience and changing patterns. For example, New Zealanders of Caucasian and Maori origins have comparably high rates of testicular tumours,⁵ and for them orchidectomy should be used. But in the USA, where different races have differing rates of testicular cancer,¹ management varies.

¹ Mostofi, F K, and Price, E B, *Tumors of the Male Genital System*. Washington, DC, Armed Forces Institute of Pathology, 1973.

² Jalota, R, Middleton, R G, and McDivitt, R W, *Cancer (Philadelphia)*, 1974, **34**, 464.

³ Doll, R, *Proceedings of the Royal Society of Medicine*, 1972, **65**, 49.

⁴ Burkitt, D P, *Proceedings of the Royal Society of Medicine*, 1973, **66**, 312.

⁵ Petersen, G R, and Lee, J A H, *New Zealand Medical Journal*, 1973, **78**, 401.

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Importance of IgM determination in cord blood in cases of suspected rubella infection

We report here two cases showing the importance of measuring IgM in the cord blood of immature neonates.

Methods

IgA, IgM, and IgG levels were determined with the radial immunodiffusion method. Sephadex G 200 was used to separate the IgM and IgG fractions in sera.^{1,2} After concentration by pressure dialyses (Amicon filter UM 10) the rubella antibody level was determined. Rubella antibodies were measured with the haemagglutination inhibition reaction,³ using the Testrub test kit (RIT, Genval, Belgium). Briefly, 0.2 ml serum was mixed with 0.2 ml buffer solution (pH 6.4) and inactivated. After cooling 0.1 ml pigeon-erythrocytes 50% were added and after incubation the mixture was centrifuged. The liquid was poured off and mixed with 1.1 ml kaolin suspension (25%). After one hour the liquid was separated from the suspension and used as the first serum dilution (1/8) in the inhibition test. From this dilution the succeeding dilutions—1/16, 1/32, etc, were made. Antigen solution (containing four haemagglutination units) was added to every dilution, and after incubation erythrocyte suspension was added. The test was read after two hours. For the IgM and IgG fractions we used a heparin MnCl₂ mixture instead of kaolin.

Case 1

The child was born at 38 weeks' gestation, weighed 1780 g, and was 45 cm long. The spleen and liver were enlarged, and a severe thrombocytopenia had developed. Immunoglobulin levels in cord blood were: IgA trace, IgM 3.0 g/l, and IgG 8.1 g/l. This represented a steep increase in the IgM level (normal 0.2 g/l). Titres of rubella antibodies in IgM and IgG fractions were 1/64 and 1/128 respectively. After four days the child died, and rubella virus was isolated at necropsy from different organs.

Case 2

This child was also born at 38 weeks' gestation, weighed 1760 g, and was 45 cm long, but seemed perfectly healthy. The immunoglobulin values in the cord serum were: IgA trace, IgM 4.1 g/l, and IgG 9.0 g/l. Again the IgM level was increased greatly. The titre of rubella antibodies in IgM and IgG fractions were 1/128 and 1/64 respectively. A rubella infection in the child seemed likely. Cultures from nasopharynx and urine, however, remained negative. Rubella titres in the mother's serum rose from 1/16 in the eighth week of pregnancy (only IgG antibodies) to above 1/512 in the 38th week of pregnancy (also only IgG antibodies).

Comment

The diagnosis of rubella infection in case 1 seemed clear. From the anamnesis we concluded that the infection had occurred in early

pregnancy. Case 2 was probably a case of reinfection.^{4,5} A maternal viraemia must have occurred, because there were antibodies in the IgM fraction of the cord blood. Or a primary infection might have occurred in the eighth week of pregnancy. The absence of congenital disorders, the absence of exanthema in pregnancy, and the fact that antibodies were found only in the IgG fraction are arguments against this.

Three conclusions can be drawn from these two cases. Firstly, determining the IgM level in the cord blood can be useful in the case of suspected congenital rubella infections. Secondly, if the IgM level is increased in the child's serum rubella antibodies should be looked for in the IgM fraction. Thirdly, it is doubtful whether a titre of haemagglutinating antibodies of 1/16 offers sufficient protection against reinfection with viraemia.

¹ Gupta, J D, *et al*, *Journal of Clinical Pathology*, 1971, **24**, 547.

² Snijder, J A M, *Nederlandsch Tijdschrift voor Geneeskunde*, 1974, **26**, 995.

³ Peetermans, J, and Huygelen, C, *Presse Médicale*, 1967, **75**, 2177.

⁴ Haukenes, G, and Haram, K O, *New England Journal of Medicine*, 1972, **287**, 1204.

⁵ Pead, P J, *Lancet*, 1973, **2**, 149.

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Lepromatous leprosy presenting with swelling of the legs

In the various forms of leprosy, and including the adverse reactions associated with either cell-mediated or humoral (immune-complex) responses, oedema is well recognised, though its cause is not fully understood. We report a case in which seven years after arriving in Britain a Pakistani man was found to have lepromatous leprosy after presenting with swelling of the legs and superficial phlebitis.

Case report

A 50-year-old Pakistani man presented at a varicose vein clinic with swelling of the legs and giving a vague history of varicose eczema and recurrent phlebitis. Examination confirmed pitting oedema of the feet and ankles and tender areas of inflammation along the superficial veins. Although there was neither eczema nor varicose ulceration he was referred to a dermatological clinic by which time he was feverish, looked ill, and had soft-tissue swelling of the nose, cheeks, forehead, and ears. There were tender nodules, about 1 cm in diameter, over the thighs, lower legs, and extensor surface of the forearms, and larger, less well-defined lesions—raised, red, not tender on palpation—on the calves, knee regions, and thighs. Oedema of the legs was unusually firm and reached almost to the knees; the overlying skin had a shiny "mahogany woodgrain" pattern. Nothing abnormal was found on palpation of the peripheral nerves but cotton-wool testing showed anaesthesia of an incomplete "glove-and-stocking" type in the hands and feet. The testicles were atrophic and painless on pressure. Fresh blood was present in the right nasal vestibule.

From 1970 to 1975 he attended an ear, nose, and throat clinic on several occasions with deafness and ear inflammation, and in the year before diagnosis he developed nasal blockage and epistaxis, the latter needing cauterisation and packing on several occasions.

Ziehl-Neelsen staining of slit-skin smears from ears, cheeks, and arm and leg lesions disclosed numerous *Mycobacterium leprae*. Nasal smears and nose-blow material were strongly positive for acid-fast bacilli, and biopsy specimens from an arm nodule, left ear lobe, and left nostril showed typical lepromatous histopathology. Two of these biopsy specimens, however, also showed areas of vasculitis and infiltration by polymorphs. A lepromin test gave negative results at four weeks.

The type of leprosy was judged to be lepromatous with features of immune-complex reaction, as evidenced by erythema nodosum leprosum in the skin, increased erythrocyte sedimentation rate, fever, malaise, pain, and