category in whom evidence of virus infection in the lower respiratory tract was found—that is, those who had type 2 lung histology with or without an identified virus. The proportion of cot deaths with evidence of virus infection in the lower respiratory tract (seven out of 31; 23%) was greater than that of “other deaths” under 1 year (one out of 23; 4%), but the difference was not significant.

RS virus was identified in two children from each of the three categories. The case histories of the two cot deaths and two “other deaths” were as follows.

Case 1—Cot death at age 2 months. The baby developed a minor cough and runny nose. After two days he was seen by the general practitioner, who prescribed an antibiotic. He remained generally well but two mornings later was found dead.

Case 2—Cot death at age 4 months. On the day before death the baby was seen for a routine check by her general practitioner, who found her well. Next day she appeared well to her parents, although possibly she took her 8 am feed less hungrily than usual. At 11.30 am she was found dead.

Case 3—Death from medulloblastoma at age 5 months. Hydrocephalus was diagnosed in this girl at the age of 9 weeks and relieved by a shunt operation. At 3 months she was readmitted with signs of increasing intracranial pressure, and air studies suggested a tumour. At the age of 5 months, while still in hospital, she became ill suddenly one evening, with irregular respiration but no signs or symptoms of respiratory infection; she died three hours later. Postmortem examination showed a medulloblastoma and coning, as well as RS virus in the lungs and type 2 lung histology.

Case 4—Death from road-traffic accident at age 3 years. Three days before death the child had developed a slight cold but was not considered to be ill. His brothers and sisters had similar colds. He was run over in the street by a reversing van and died immediately. At necropsy there was extensive brain damage, but also RS virus in the lungs and type 2 lung histology.

Discussion

These results confirm the findings of smaller studies^{2,4} and show that evidence of respiratory virus infection may be found at necropsy in about a quarter of cot deaths. Such evidence seems to be more common in case of cot death than in children dying from known non-respiratory causes; but as children in this second group are few it is difficult to draw firm conclusions at a single centre. Pooling results from several centres raises major problems in standardising techniques for identifying viruses, which have yet to be solved.

Nevertheless, virus and lung histology findings similar to

TABLE II—Numbers of children, grouped according to category of death, with postmortem evidence of virus infection in lower respiratory tract

	Virus infection in lower respiratory tract*		Total
	Present	Absent	
Cot deaths	7	24	31
Respiratory deaths			
Under 1 year	6	12	18
Over 1 year	3	12	15
Other deaths			
Under 1 year	1	22	23
Over 1 year	1	16	17

*Regarded as present if lung histology categorised as type 2, even if no virus identified.

those in some cot deaths seem to occur in at least a few children dying from known non-respiratory causes. Although a rapidly overwhelming or inadequately appreciated severe respiratory infection remains a possible mechanism in some cases of cot death, our results are compatible with the hypothesis that sudden fatal apnoea may be triggered by a minor illness. Considerable non-virological evidence in support of this hypothesis is accumulating.^{6,7}

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SHORT REPORTS

Orbital cellulitis related to an influenza A virus epidemic

Orbital cellulitis is rare, being a complication of ethmoid sinusitis, and may result in blindness, cavernous sinus thrombosis, meningitis, and death.¹ Three patients are described, all being admitted in the same week during an epidemic of influenza.²

Case reports

Case 1—A 19-year-old woman presented with a three-day history of upper respiratory tract infection, swelling of the left eyelids, and axial proptosis. A conjunctival swab was sterile, but the nasal swab grew *Staphylococcus aureus*. The organism was sensitive to ampicillin and the condition responded to treatment with antibiotics and local decongestants. X-ray films showed a pansinusitis. At no time was her vision affected.

Case 2—A 6-year-old boy presented with a six-day history of upper respiratory tract infection and swollen left eyelids. The globe was proptosed forwards, laterally, and downwards and the eye movements were restricted. Nasal swabs grew *Staphylococcus aureus*, but a conjunctival swab was sterile. X-ray films showed an ethmoid sinusitis but the antra were radiologically clear. He had already been taking penicillin V syrup, 250 mg four times daily, for six days without improvement, and was therefore submitted to surgery. The ethmoid was explored through the nose, and a subperiosteal abscess was found on the medial orbital wall. Postoperatively, the proptosis

resolved slowly leaving no muscle imbalance. His visual acuity was not affected.

Case 3—An 11-year-old boy presented with a ten-day history of upper respiratory tract infection and swelling of the left eyelid for three days. The left eye was proptosed forward and laterally and he complained of pain. On the morning of admission he developed chemosis and limitation of movement. Thirty-six hours later he had a total ophthalmoplegia and no perception of light. He was treated with ampicillin intramuscularly. Eye swabs were sterile initially but later grew *Staphylococcus aureus*, as did nasal swabs. An x-ray film showed pansinusitis. There was no response to medical measures. At operation a subperiosteal abscess communicating with the ethmoid labyrinth was found. The lamina papyracea was missing but a sequestrum was present within the abscess. This abscess was in continuity with an orbital abscess and both were drained through the same incision. This procedure proved to be inadequate and four days later a loculus was drained through the orbital septum at the level of the inferior orbital margin. He made a full recovery but at the height of his disease the left eye showed a congested optic disc, retinal haemorrhages, and retinal folds, and visual acuity was down to no perception of light. The intraocular pressure at time of operation was 33 mm Hg. (Mean normal 16 mm Hg applanation.) His visual acuity was 6/6 on discharge.

Discussion

In 1937 Ehlers³ classified orbital cellulitis into three types. Firstly, collateral oedema occurring as a reaction to an infected focus near the orbit; case 1 with ethmoiditis fits into this group. Secondly, subperiosteal and preseptal abscess formation; case 2 with a subperiosteal

abscess fits into this group. Thirdly, true orbital cellulitis or inflammatory infiltration within the space enclosed by the orbital periosteum and orbital septum; case 3 fits into this group. In Scott's series⁴ two of the four patients in this group died and three of them developed cavernous sinus thrombosis.

In our series two diagnostic points emerged. Firstly, the results of nasal-swab culture may help. In all three patients *Staph aureus* was grown from the nose, but conjunctival swabs were initially sterile. Secondly, the x-ray view employed is important. Thus the occipitotemporal sinus x-ray film may not show the ethmoid opacity. In departments where an occipitotemporal view has become standard an occipitofrontal view should be requested specifically.

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Sodium nitroprusside and renovascular hypertension

Sodium nitroprusside is a peripheral vasodilator which has proved effective in hypertensive emergencies, acute myocardial infarction, resistant pulmonary oedema, and also during surgical procedures (including nephrectomy¹). We report its use in severe drug-resistant renovascular hypertension associated with left ventricular failure before and after corrective surgery. We suggest that the great advantage of sodium nitroprusside is the rapid control of blood pressure, which is easily maintained in the face of major changes in requirements for antihypertensive treatment.

Case report

A 21-year-old man was admitted in April 1977 after an incidental blood pressure (BP) recording of 260/160 mm Hg.

The results of routine investigations were normal including renal function tests. Intravenous pyelography and renal arteriography indicated left renal artery stenosis. Control of hypertension proved difficult and so a left endarterectomy with saphenous patch grafting was performed two months later. BP did not fall, however, and hypertension could not be controlled. The patient was transferred to the hypertension unit at Leicester. His BP was 260/156 mm Hg. He was treated with propranolol 480 mg, prazosin 20 mg, and bendrofluazide 5 mg daily. Urea was 6.9 mmol/l (41.6 mg/100 ml), creatinine 158 µmol/l (1.79 mg/100 ml). Oral antihypertensive treatment was discontinued and BP control attempted with intravenous diazoxide until 48 hours before renal angiography and renal vein sampling for plasma renin activity (PRA). Large doses of diazoxide partly controlled the BP but the dosage could not be increased because of nausea and vomiting. Angiography showed a thrombosed left renal artery at the site of the previous operation. Some renal function remained on the left, maintained presumably by the well-developed collateral circulation. PRA results (ng angiotensin I/ml/h): peripheral vein 131, aortic 136, low inferior vena cava 141, high inferior vena cava 162, right renal vein 220, left renal vein 366 (upper limit of normal for peripheral vein PRA, 4.4 ng angiotensin I/ml/h). These results were consistent with an appreciable hypersecretion of renin by the left kidney though renin secretion on the right was not fully suppressed.² In view of the difficulty in controlling his BP, corrective surgery was performed.

Before operation he developed severe left ventricular failure resistant to frusemide. Sodium nitroprusside treatment was started according to the published protocol³ and BP was easily controlled at an acceptable diastolic level (see figure). Within hours left ventricular function improved, no further diuretic being needed. Operation confirmed thrombosis of the left renal

BP changes before and after left nephrectomy.

artery and because vascular surgery was not technically possible a left nephrectomy was performed. Control of BP during operation and for 48 hours afterwards was maintained with sodium nitroprusside treatment. At the end of this period it was discontinued. Four days after operation peripheral vein PRA was 1.9 ng angiotensin I/ml/h. Despite this, diastolic BP remained within the range 100-120 mm Hg and he required antihypertensive medication on discharge.

Comment

Sodium nitroprusside was of value in our patient in three ways. Firstly, there was rapid, precise, and sustained control of hypertension which had been resistant to other antihypertensive agents, including large doses of intravenous diazoxide. Secondly, severe left ventricular failure responded well, sodium nitroprusside being effective in reducing left ventricular work by decreasing peripheral resistance without increasing venous return and hence stroke volume. Thirdly, BP was controlled easily during surgery and postoperatively. The very short, effective half life of sodium nitroprusside permitted smooth control of blood pressure when substantial changes were occurring in the factors which maintain blood pressure (such as the renin-angiotensin system). We suggest that sodium nitroprusside is the agent of choice in such circumstances.

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Meningitis in Whipple's disease

Neurological features are well recognised in Whipple's disease but clinical meningeal inflammation is rare.¹ We report a further case which was unaccompanied by any other clinical neurological abnormality.

Case report

A 51-year-old Caucasian man was referred with a three-year history of increasing polyarthritides, fever, muscle weakness, and steatorrhoea partially responsive to prednisolone, 15 mg/day. Histologically the jejunal biopsy specimen was characteristic of Whipple's disease showing infiltration with