Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
X-ray examination of the chest was performed in six of the children and aided the diagnosis in two cases. A skull X-ray was performed in only one instance and was not helpful. Negative radiological findings should not deter the clinician from screening relatives in an attempt to confirm the diagnosis of TBM. In our small series, definite contacts were identified by chest X-ray in four out of five cases.

Three of the six children who had CAT scans had been referred initially to the neurosurgical unit to exclude space-occupying lesions. In five of these children the scan showed ventricular dilatation and was, therefore, helpful in diagnosis and management.

Only one child was old enough to have had routine antituberculous screening at school, but, although the Heaf test was positive, the chest X-ray at the time was reported as normal.

**Clinical Features**

It is traditionally taught that there is a long history of illness in TBM, but some children, particularly younger ones, may have a much shorter history. Convulsions were the presenting feature in up to 20% of children under 2 years in one study, and one child in our series was admitted with convulsions associated with fever.

Choroidal tuberculosis were not found in any of the seven cases, which is in agreement with the suggestion that choroidal tuberculosis are found in TBM only in association with miliary tuberculosis; none of the children in our series had miliary tuberculosis.

**Conclusions**

Although local increases in the frequency of TBM do not necessarily reflect a national trend, we have shown that TBM still occurs in children in the U.K. and is not confined to immigrant families. The history may be short and convulsions and miliary tuberculosis are not uncommon. The use of the wrong tuberculskin test may delay treatment, and a Mantoux 1:1000 test should be used whenever the diagnosis of TBM is in question. The diagnosis is not excluded by a normal chest X-ray. Contacts should be followed up energetically. Abdominal x-ray partition test is an additional useful, safe, and easy test.

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Seasonal distribution.—Sporadic cases occurred throughout the year (fig. 1), with a peak incidence, 22 (56%), in the winter quarter, November to January.

Age.—The age distribution of 37 cases is shown in fig. 2. Two male patients, one aged thirteen years and one of unknown age, are not included. The age-range was six weeks to thirteen years; peak incidence occurred during the first six months of life. No adult infection was detected, although this is known to occur. Neonatal infection was not encountered, although many stools from babies in special care baby units were included in the gastroenteritis study.

Sex ratio.—The higher infection rate in male children reported for other gastroenteritis viruses was demonstrated among the sporadic cases of calicivirus infection (fig. 2). 24 males were infected and 15 females, a ratio of 1.6/1.

Clinical features.—These were recorded in 28 patients, 26 of whom had been admitted to hospital. Diarrhoea was the commonest clinical feature, occurring in 25 (89%) of the 28 cases. Vomiting was reported in 14 (50%); only 1 patient had vomiting without diarrhoea and this was the only case of projectile vomiting reported. 2 children had neither diarrhoea nor vomiting. Upper respiratory tract infection was reported in a third of the cases. Failure to thrive and malabsorption was reported in only 3 cases. 5 children had fever. The duration of symptoms ranged from two to eleven days with most illnesses lasting about four days. 13 (46%) of the affected children had siblings and, of these, 5 had at least 1 sibling with similar symptoms of illness. In 1 case the brother attended a school where there was a concurrent outbreak of diarrhoea and vomiting. The duration of excretion of viruses is shown in table I; the finding that the chances of detecting virus diminishes after the fourth day emphasises the need to obtain specimens during the symptomatic phase of illness.5

Serology (immune electron microscopy [IEM].—Four strains of virus found in sporadic infections were tested against sera from three reported outbreaks2,4,6 (table II). There is little evidence of serological relations between the sporadic strains and strains associated with two of the outbreaks, but there is some evidence for a relation with the third.2

**DISCUSSION**

Viruses morphologically identical with caliciviruses have recently been detected in animals6,8 and people9-11 with gastroenteritis. The study of outbreaks in man in the U.K.,2,4,12 Japan,6 and Canada13 has provided evidence that these viruses can cause diarrhoea and vomiting in all age-groups other than neonates. The apparent absence of cases in neonates may be due to predominantly asymptomatic infection or be associated with immunity due to maternal antibody.

In the series of sporadic cases reported here, diarrhoea was the most frequent symptom, whereas, in children aged four to six years, vomiting was more common.2 It has been suggested that these differences in symptoms may be age-related. However, since vomiting has been reported as the commonest feature in infected infants aged nine days to two years, age does not appear to be the sole determinant. Other clinical features, such as fever and upper respiratory tract infection, have been reported infrequently. Thus the clinical features of calicivirus gastroenteritis are not distinguishable from those due to rotavirus infection.

Several cases of calicivirus infection associated with failure to thrive have led us to consider the possibility of an...
Round the World

From our Correspondents

THE PHYSICIAN IN PAPUA NEW GUINEA

Opportunities for specialist physicians wishing to work in tropical developing countries have diminished in recent years. It is still possible to obtain a post in Papua New Guinea, although the positions available now will be filled within the next few years by local graduates. Surprisingly little is known in Europe about the country, and it is difficult to obtain accurate information about existing work. The work of junior medical officers in Papua New Guinea has, however, been the topic of several recent articles.1, 2

The Country

The central highlands are mostly above 5000 feet, and although just south of the equator, the climate is mild with cool nights. As a result, malaria is not prevalent, and the valleys are densely populated; deforestation is accordingly extensive. The coastal regions of the mainland, however, and the large islands to the north and east (Manus, New Ireland, New Britain, and Bougainville) are not completely sealed, and poor driving standards together with alcohol abuse contribute to a high rate of motoring accidents.3 In 1979, P.N.G. had 67 deaths per 10,000 registered vehicles.4

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The Health Services

The health services of P.N.G. are comprehensive and well organised. The Health Department has base hospitals at Port Moresby, Lae, Goroka, Madang, and Rabaul. Port Moresby General Hospital has four general medical units, two of which are directed by university physicians, while the other base hospitals have one physician, surgeon, paediatrician, and obstetrician. Anaesthetics are usually administered by specially trained nurses or resident medical officers. Within the region served by a base hospital are a number of district hospitals staffed by general medical officers (often expatriate) and nurses. The district hospitals in turn provide a referral centre for the health centres in outlying areas, which are manned by health extension officers (H.E.O.s), paramedical workers who have completed a 3-year course in basic medicine. The health centres supervise a number of aid posts which are in the charge of aid post orderlies (A.P.O.s), competent to treat minor ailments and common illnesses such as malaria. This system provides basic medical care for every person, even in remote areas.

The University of Papua New Guinea is situated in Port Moresby. There are three posts for consultant physicians in clinical medicine, one chair and two senior lectureships, one of which is at Port Moresby.

The Papua New Guinea Institute of Medical Research is...