THE INCIDENCE OF INFANTILE PYLORIC STENOSIS IN THE NORTH-EAST OF SCOTLAND

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Wallgren (1941), in Gothenburg, found that pyloric stenosis occurred in four out of every 1,000 infants born alive, but in this country Davison (1946) in Newcastle found the incidence to be 2·8 per 1,000 live births, and Lawson (1951) in Dundee found it to be as low as 1·5 per 1,000 live births. Wallgren, Davison and Lawson all claim that their area was particularly suitable for the calculation of the incidence of the disease and that few cases can have been missed. MacMahon, Record and McKeown (1951) found the incidence in Birmingham increasing from 2·1 per 1,000 live births in 1941 to 4·2 in 1949.

In the Aberdeen area the Royal Aberdeen Hospital for Sick Children is the only children's hospital serving the City of Aberdeen and the counties of Aberdeen and Banff, and it is certain that all diagnosed cases of infantile pyloric stenosis from that area are seen at the hospital out-patient department or treated in the hospital. In a survey of pyloric stenosis covering 16 years from 1938 to 1953, it was found that the number of cases in this area rose steadily.

For purposes of comparison the cases are divided into four groups, each group covering a four-year period. Cases in Group I occurred in the period 1938 to 1941, in Group II in 1942 to 1945, in Group III in 1946 to 1949, and in Group IV in 1950 to 1953. As shown in Table I the actual number of cases increased from 62 in Group I to 120 in Group IV, and the incidence, calculated per 1,000 live births,

increased from 2·37 in Group I to 4·5 in Group IV. The incidence over the whole period was 3·3 per 1,000 live births.

The incidence of 3·3 per 1,000 births over the whole series is only slightly higher than Davison's figure of 2·8, and the figure of 4·5 in Group IV is only slightly higher than Wallgren's 4·0, but comparing the Aberdeen area with Dundee for the period 1940 to 1946 quoted by Lawson, in the Aberdeen area 141 cases occurred in 47,101 live births, an incidence of 3·0 per 1,000 live births, whereas in Dundee 32 cases occurred in 21,288 live births, an incidence of 1·5 per 1,000 live births.

The interesting feature of this study is the marked rise in incidence of diagnosed cases, from 2·37 in Group I to 4·5 per 1,000 live births in Group IV. The factors responsible for this increase in incidence have been studied.

It is reasonable to assume that, if a genetic factor is involved, as more affected infants survive the incidence may increase due to their progeny being affected, but the time lapse between Groups I and IV is too short for second generation pyloric stenosis to appear, and investigation of the family history shows that, although a family history of pyloric stenosis was obtained in 25 cases, the incidence was not affected by survival of diagnosed cases in a previous generation, as no parent and only one grandparent had been affected.

More frequent diagnosis might account for the increased incidence. Wallgren (1941) suggests that pyloric stenosis is 'diagnosed more frequently in and around those towns possessing children's hospitals under the supervision of well trained paediatricians than elsewhere'. In the Aberdeen area close contact is maintained by general practitioners with their parent teaching hospital, and this may to some extent account for the high incidence in this area. Despite the incidence of 3·3 per 1,000 live births in the area over a 16-year period, the doctor population is such that only one doctor in 10 had an opportunity of seeing a case in his practice in any one year. He

TABLE I
INCIDENCE OF PYLORIC STENOSIS IN CITY OF ABERDEEN,
ABERDEENSHIRE AND BANFFSHIRE

	Live Births	Number of Cases	Incidence per 1,000 Live Births
Group I ...	26·074	62	2·37
Group II ...	26·112	71	2·7
Group III ...	31·731	116	3·6
Group IV ...	26·477	120	4·5
Total ...	110·394	369	3·3

TABLE 2
INCIDENCE RELATING TO TOTAL MEDICAL ADMISSIONS

Year	Total Medical Admissions	Admissions of Babies Aged under 3 Months (% Total Admissions)	Babies Admitted under 3 Months with Vomiting as Presenting Symptom (% of Admissions under 3 Months)	Babies Admitted under 3 Months with Pyloric Stenosis	% Admissions under 3 Months with Vomiting and Pyloric Stenosis
1938-41	1,941	401 (20.7)	162 (40.4)	69	42.6
1942-45	1,775	337 (19)	169 (50.1)	81	48.1
1946-49	2,446	537 (21.9)	296 (55.1)	132	44.6
1950-53	2,814	757 (26.9)	345 (44.5)	142	41.2
1938-53	8,976	2,032 (22.6)	972 (47.8)	424	43.6

may have to wait 10 years before a case occurs in his practice, and he is not, therefore, going to acquire skill in the diagnosis of the disease. In this series some doctors did have frequent opportunities of diagnosing pyloric stenosis. In the 16-year period one doctor referred eight cases to hospital, four referred seven cases each, four referred five cases each, several referred two or three cases each, but 95 doctors referred only one case each. Although he is unskilled in making the diagnosis, the general practitioner may have become more aware of the frequency of the condition, and may have become more ready to refer to hospital any infant who vomits persistently. Not all these infants were admitted with the diagnosis of pyloric stenosis, and not all cases referred as pyloric stenosis were found to be suffering from the disease.

To try and find out whether more infants were being admitted to hospital, a study was made of all medical admissions from the whole area served by the hospital. This area consists of the City and County of Aberdeen, the counties of Kincardine, Banff and Moray, and the Orkney and Shetland Isles. A few cases from areas outside Aberdeenshire and Banffshire may go to other hospitals either within or outside the area, and for that reason the incidence of the disease (Table 1) has been calculated for the City and County of Aberdeen and Banffshire only, while the admissions have been calculated for the whole area. Cases of infantile pyloric stenosis are admitted to the medical wards, and almost all young infants admitted because of vomiting are admitted as medical cases, or are transferred to the care of the physicians.

Table 2 shows that, although there has been a steady increase in the number of medical admissions, the increase in the number of those aged under 3 months has outstripped the general increase, the difference being most marked between the years 1946-49 and 1950-53, when the total admissions

increased by 368, and the admissions under 3 months in age by 220.

The number of infants admitted to hospital because of vomiting has at the same time increased from 162 in 1938-41 to 345 in 1950-53. It is interesting to note from this table that the percentage of infants under 3 months of age admitted to hospital because of vomiting, and subsequently found to be suffering from pyloric stenosis, has altered very little. Pyloric stenosis would appear to be the cause of vomiting in four out of every 10 infants under the age of 3 months admitted to this hospital because of vomiting. The greater the number of vomiting infants admitted, the greater the number of cases of pyloric stenosis diagnosed. Realization of the frequency of the disease probably accounts for the increased admission to hospital of vomiting infants, and thus some cases are diagnosed which might otherwise have died undiagnosed, and some mild cases may be diagnosed which might have survived undiagnosed.

Conclusions

The incidence of infantile pyloric stenosis, as studied in the Aberdeen area, has increased during the 16 years from 1938 to 1953.

It is unlikely that there has been a natural increase in the disease, and one must conclude that the increased incidence is due to more frequent diagnosis, probably the result of increasing awareness of the condition by the general practitioner, and an increased tendency on his part to refer to hospital any infant who vomits persistently.

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