THE SCOTTISH PAEDIATRIC TUMOUR REGISTRY*

A Report on the First Five Years: 1955-59

BY

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The Scottish Paediatric Tumour Registry was organized by the Scottish Surgical Paediatric Club and began to operate on January 1, 1955. The Scottish Paediatric Society promised their co-operation and it was thus assured of support from paediatric surgeons and paediatricians in the five Hospital Regions of Scotland. Co-operation was sought from pathologists in all hospitals with paediatric units, and these have supplied pathological material to the Registry. A panel of pathologists has been formed to whom difficult cases are submitted for an opinion. This panel consists of one or more pathologists from each region, these being paediatric pathologists if available, otherwise the pathologists mainly responsible for paediatric pathology in their regions. The follow-up of patients has been conducted by means of forms requesting a report, which are sent out from the Registry for each patient on the live register at six-monthly intervals. The Registry has lacked the advantage of a whole-time worker who could visit hospitals to examine records and call on defaulting patients in their homes. Nevertheless, the simple method adopted has worked surprisingly well, and few patients have been lost sight of and very few indeed of those with malignant tumours.

This communication deals with only one aspect of the information that is being collected by the Registry: the outcome of the malignant cases as ascertained by the follow-up to date (July 1960). For this purpose all malignant and borderline cases registered up to December 31, 1959, have been reviewed. The 'borderline' cases were those in which some reasonable doubt existed as to their benign or malignant character, and those that were dangerous to life owing to their situation (e.g. histologically benign astrocytomata) or for some other reason. The malignant and borderline tumours numbered 308, of which the vast majority were obviously malignant. Of the 308, 287 fell into the

TABLE 1
MAIN TYPES OF MALIGNANT AND BORDERLINE TUMOURS

Type	No.	Deaths
Leukaemia	79	72
Intracranial tumours	58	33
Neuroblastoma, etc.	33	45
Sarcoma	31	34
Nephroblastoma	32	25
Retinoblastoma	8	2
Hepatoblastoma	6	5
Total	287	216

seven main categories indicated in Table 1, and the following review of outcome includes only these cases.

Of the 287 patients, 216 have already been reported as dead. The leukaemias constitute the largest group. The number of intracranial tumours is smaller than it should be: it is known that many cases from one neurosurgical unit have not been sent to the Registry. 'Neuroblastoma, etc.' includes neuroblastoma, ganglio-neuroblastoma and ganglioglioma, these all having a common histogenesis though differing in malignancy. The sarcoma group includes all types of sarcoma, Hodgkin's disease and other malignant reticulososes, but not the granulomatous reticuloendothelioses.

Table 2 presents the incidence and outcome of the principal types of intracranial tumours and indicates the much better prognosis of astrocytoma

TABLE 2
INTRACRANIAL TUMOURS

Type	No.	Deaths
Astrocytoma	19	6
Medulloblastoma	15	12
Malignant glioma, etc.	15	11
Others	9	4

* A paper read at a meeting of the British Association of Paediatric Surgeons held in London in July 1960.

TABLE 3
SURVIVAL TIME IN 49 CASES OF INTRACRANIAL TUMOURS

Time (yrs)	Astrocytoma		Medulloblastoma		Malignant Glioma	
	Alive	Dead	Alive	Dead	Alive	Dead
<1	2	4	—	9	2	7
1-2	2	—	1	3	2	2
2-3	2	1	2	—	—	1
>3	7	1	—	—	—	1
Total ..	13	6	3	12	4	11

compared with the other types. Table 3, in which the times of survival of patients with intracranial tumours are shown, confirms the relatively favourable outcome of astrocytoma and the unsatisfactory outcome of the other types. The absence of survivors of medulloblastoma beyond the third year is particularly disappointing.

TABLE 4
NEUROBLASTOMA, ETC.

Type	No.	Deaths	Survival Time (Eight Cases)		
			< 1 yr	1-2 yrs	> 2 yrs
Neuroblastoma and ganglioneuroblastoma ..	51	45	3	1	2
Ganglioneuroma ..	2	0	—	—	2

Table 4 shows the outcome of tumours of the sympathetic nervous system. The two ganglioneuromata were regarded as probably benign. The other 51, whether neuroblastoma or ganglioneuroblastoma, were regarded as fully malignant. Only six of these survive, of whom only two have survived more than two years. Of those who died, only one survived more than one year.

Table 5 shows the outcome of a small series of cases in which vitamin B₁₂ was used in treatment. The number is too small and the outcome too equivocal to allow conclusions to be drawn, but

TABLE 5
VITAMIN B₁₂ THERAPY IN SEVEN CASES OF NEUROBLASTOMA

Age	Alive	Dead	Survival Time
4 mths	+	—	9 mths
6 mths	—	+	10 mths
9 mths	+	—	3½ yrs
1 yr	—	+	6 mths
2 yrs	+	—	2½ yrs
5 yrs	—	+	2 mths
9 yrs	—	+	8 mths

some encouragement may be drawn from the fact that the only two patients who have survived for more than two years are in this group.

Tables 6 and 7 show the incidence and outcome of the main types of sarcoma. Lymphosarcoma was the most frequent type and had a very unfavourable outcome, only one patient having survived more than one year. Fibrosarcoma compared favourably with the other types, there having been only one death among nine patients, four of the survivors being well after more than four years.

TABLE 6
SARCOMA (MAIN TYPES)

Type	No.	Deaths
Lymphosarcoma ..	14	11
Reticulosarcoma, etc. ..	13	9
Fibrosarcoma ..	9	1
Myosarcoma ..	4	3
Osteosarcoma ..	4	3
Total ..	44	27

TABLE 7
SURVIVAL TIMES IN 36 CASES OF SARCOMA

Time (yrs)	Lymphosarcoma		Reticulosarcoma		Fibrosarcoma	
	Alive	Dead	Alive	Dead	Alive	Dead
<1	2	11	1	4	3	0
1-2	0	0	1	0	0	1
2-3	0	0	0	2	1	0
3-4	0	0	1	1	0	0
>4	1	0	1	2	4	0

TABLE 8
SURVIVAL TIMES IN 32 CASES OF NEPHROBLASTOMA

Time (yrs)	Alive	Dead
<1	1	20
1-2	1	3
2-3	4	2
3-4	1	0
Total ..	7	25

Table 8 shows the outcome of the 32 cases of nephroblastoma and presents an unexpectedly gloomy picture. It confirms the general impression that most fatal cases terminate within a year, but there were five deaths after that period, two being during the third year after treatment. These results are worse than those of many published series of cases, but it may mean only that a larger number is needed to give a just indication of the prognosis of nephroblastoma.