TUMORS in children and adolescents are not so infrequent as generally believed. One is impressed by the difference between early textbooks of pediatrics, which refer very briefly to tumors, and modern works in which extensive chapters deal with this problem. Tumors of the central nervous system are prominent among neoplasms occurring in childhood. In a statistical analysis of 1770 cases of tumors in children, tumors of the central nervous system represented 21 per cent, thus sharing first place with bone tumors. The vast majority of tumors of the central nervous system in children are localized in the cerebellum, brain stem and cerebral hemispheres and only a few in the spinal canal. This accounts for the inadequate presentation of intraspinal tumors in most textbooks of pediatrics with the exception of Bucy's excellent contribution to Nelson's Textbook of Pediatrics although, as will be indicated later, the authors would not agree with his somewhat sweeping statement that ependymomas are the tumors encountered most frequently.

The existence of intraspinal tumors in children was demonstrated for the first time at the end of the nineteenth century by Horsley and Gowers, and then by Schlesinger, both times in postmortem studies. Later, with the progress of clinical knowledge and therapeutic means, the study of intraspinal tumors in the young entered a new epoch and numerous reports on this subject appeared in the literature.

The frequency, sex, and age

Between 1935 and 1960 we studied in the "Prof. D. Bagdasar" neurosurgical clinic in Bucharest 12 patients (under 16 years of age) harboring intraspinal tumors. Both our data and those collected from the literature confirm Bailey's statement that whereas in adults the rate of intracranial tumors/intraspinal tumors is 6/1, in children it is 20/1 (the only exception is the rate of 5/1 given by Ingraham and Matson). As far as the sex of our patients is concerned, females predominated (2/1) while in a series of intraspinal tumors in adults the rate was roughly 1/1.

Our patients were divided in two age groups: between 0 and 12 years, and between 13 and 16 years. Only 3 patients were in the first group, while the second included 9 patients (a rate of 3/1 in favor of the older group). The youngest patient was 6½ years of age.
More than half of the tumors (58 per cent) were localized in the thoracic segment of the spinal canal, 33 per cent in the thoracolumbar or lumbar segment and only 1 tumor was situated in the cervicothoracic segment. No tumor was purely cervical. These differ from the data gathered by Kornianskii (53 per cent thoracic, 25 per cent cervical and 18 per cent lumbar). Only 1 tumor was extradural, 8 were subdural and 3 were intramedullary (9, 66, and 25 per cent).

Our data are in agreement with those of Kornianskii for intramedullary tumors, but most authors reported a much greater frequency of extradural tumors, roughly 40 per cent in Grant and Austin's series and 20 per cent in Kornianskii's own cases.

The nature of the tumors met with in our patients was varied. There were 4 cases each of neurinomas and gliomata, and 2 cases each of meningiomas and sarcomas. In only 1 of the 4 gliomata could the type of glioma be ascertained (an ependymoma); in the other 3 cases, because of the intramedullary situation of the tumor, no fragment of tissue was taken for microscopic examination. Our series differs from those reported by others in that we had no case of teratoma or dysembryoma, and the percentage of meningiomas and neurinomas was high in our series. There was no difference between children and adults in the proportion of different types of intraspinal tumors observed in our clinic, a fact that is in disagreement with the observations of most authors.

CLINICAL ASPECTS

In all cases the evolution of clinical signs and symptoms was progressive. The duration from the initial symptom until admission to the clinic is shown in Fig. 1.

The shortest duration was 1 month; the longest was 7 years. The first symptom in half of our patients was pain (of radicular or cordal type) whereas in 5 patients the clinical evolution started with motor weakness, and only 1 patient presented from the very beginning a mixed amyelomotor syndrome.

In only 1 of the 3 patients with intramedullary tumors were pains (of the cordal type) the first symptom.

On admission most patients presented the classical triad of spinal compression (sensory, motor and sphincteric disturbances). Motor weakness was present in all patients: of spasmodic type in 7, flaccid in 4, and flaccid-spasmodic in 1. Four of our patients showed myatrophy (2 had intramedullary tumors, 1 a cauda-equina ependymoma and 1 a meningioma in the lower thoracic region). A dissociated hyp- or anesthesia with upper level was present in all but 1 case (in the latter a L3 neurinoma was found). It is true that in young patients it is sometimes difficult to ascertain if there is a disturbance of sensation with an upper level, but a useful trick is to test sensitivity to pin prick by mimicking a game—while the child's attention is distracted by another person, the examiner watches his facial expression. Pain was much less frequent in the advanced stage of clinical evolution than at the beginning.

Half of our patients had sphincteric disturbances (both sphincters being affected in these cases).

One patient showed kyphosis and 1 a kyphoscoliosis.

PARACLINICAL INVESTIGATIONS

In three-quarters of our patients radiography of the spinal column disclosed no abnormality. In 1 patient it showed widening of the spinal canal, in 1 a scoliosis, and in 1 a kyphoscoliosis. Lefèbvre and coworkers gave a much higher percentage of radiological changes. In 14 out of their 18 cases there were changes in the statics of the spinal column and in 8 out of 18 the spinal canal was widened. Myelography (with Lipiodol)