นิพนธ์ต้นฉบับ • Original Article

การรักษาผู้ป่วยเนื้องอกไขสันหลัง 10 ปีที่ผ่านมาของโรงพยาบาลศรีนครินทร์

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Spinal Cord Tumors Cases Over the Past 10 Years at Srinagarind Hospital

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วัตถุประสงค์: รายงานการเกิดเนื้องอกไขสันหลัง จำแนกทางชนิดของพยาธิวิทยาเนื้องอกไขสันหลังตลอดระยะเวลาสิบปีของผู้ป่วยในโรงพยาบาลศรีนครินทร์และเปรียบเทียบข้อมูลนี้กับรายงานอื่นๆ

วิธีการศึกษา: ผู้ป่วยเนื้องอกไขสันหลังที่ได้รับผ่าตัดตั้งแต่ช่วงปี ค.ศ. 2005-2015 ซึ่งได้รับการลงทะเบียนในฐานข้อมูลของโรงพยาบาลศรีนครินทร์ โดยเก็บข้อมูลได้แก่ อายุในช่วงเวลาของการผ่าตัด เพศ ระดับกระดูกสันหลังของเนื้องอกไขสันหลัง อาการทางคลินิกและการวินิจฉัยทางพยาธิวิทยา

ผลการศึกษา: จากผู้ป่วยทั้งหมดจำนวน 75 ราย ในการศึกษาส่วนใหญ่เป็นเพศหญิง 42 ราย (ร้อยละ 56) อายุเฉลี่ยในการผ่าตัดเป็น 42.96 ปี ได้รับการวินิจฉัยทางพยาธิวิทยารวม 44 รายเป็น schwannoma (ร้อยละ 59) 3 ราย เป็น meningioma (ร้อยละ 4) 10 ราย เป็น ependymoma (ร้อยละ 13) ependymoma 3 ราย เป็น myxopapilly (ร้อยละ 4) 3 ราย เป็น neurofibroma (ร้อยละ 4) และ 6 ราย เป็น astrocytoma (ร้อยละ 8) และอื่นๆ จำนวน 6 ราย (ร้อยละ 8) (cavernoma, ganglioglioma, leiomyoma, lipoma, hemangioblastoma) ระยะเวลาเฉลี่ยตั้งแต่เริ่มมีอาการจนถึงได้รับการวินิจฉัยเป็น 12.44 เดือน อาการแสดงที่พบมากที่สุดของเนื้องอกไขสันหลังหลักคืออาการปวดร้าวไปที่แขน และ/หรือขา (ร้อยละ 45) ชา (ร้อยละ 25) ปวดตามแนวแกนหลัง(ปวดคอหรือหลัง) (ร้อยละ 13.3) อ่อนแรง (ร้อยละ 13.3) ร้อยละ 5.3 ของผู้ป่วยมีความผิดปกติของการปัสสาวะตามลำดับ

สรุป: ผลการศึกษานี้เป็นการรายงานผู้ป่วยเนื้องอกเส้นประสาทไขสันครั้งแรกผู้ป่วยผ่าตัดที่ได้รับเหล่านี้ในโรงพยาบาลศรีนครินทร์ซึ่งข้อมูลทางด้านอายุ เพศ ลักษณะทางพยาธิวิทยา ระดับกระดูกสันหลังของเนื้องอกและอาการ

Purpose: To clarify the relative frequency of various histo-pathological spinal cord tumors and their features over the past 10 years in Srinagarind hospital and to compare this data with other reports.

Methods: Primary spinal cord tumor surgical cases from 2005 to 2015, which were registered in our affiliated hospital database were collected. We collected data of age at the time of the surgery, sex, anatomical locations, vertebral levels of the tumor, clinical presentation and pathological diagnosis in each case.

Result: Of the 75 patients in our study, 33 (44%) were males and 42 (56%) were females. The mean age at surgery was 42.96 years. The pathological diagnoses included 44 schwannoma (59%), 3 meningioma (4%), 10 ependymoma (13%), 3 myxopapilly ependymoma (4%), 3 neurofibroma (4%), and 6 astrocytoma (8%). The other 8% of patients were diagnosed with other conditions (cavernoma, ganglioglioma, leiomyoma, lipoma, hemangioblastoma) (8%). Median time until diagnosis was 12.44 months. The most common clinical presentation of primary spinal cord tumors was pain radiating out to the arm and/or leg (45%), numbness (25%), axial pain (13.3%) (include neck pain and back pain), weakness (13.3%), Only 2 children presented with scoliosis. 10.7%, and 5.3% of patients suffered from sphincter dysfunction and paraparesis, respectively.

Conclusion: This is the first published data on primary spinal cord tumors describing the demographic characteristics, pathological features, anatomical locations, and vertebral levels of these surgically-treated tumors in

แสดงของผลการศึกษาพบความคล้ายคลึงกับรายงานจากประเทศอื่นๆ ในเอเชีย
คำสำคัญ:

Srinagarind hospital. The results were similar to those of reports from other Asian countries.
Keywords: Spinal cord tumor, Epidemiology, Tumor location, Schwannoma, Meningioma, Ependymoma

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Introduction

According to previous reports[1-13], primary spinal cord tumors account for about 4-16% of all tumors arising from the central nervous systems (CNS). Most intradural tumors arise from the cellular constituents of the spinal cord and filum terminale, nerve roots, or meninges. Metastatic involvement of the spinal intradural compartment is rare. Because of variation in population sizes studied and classification of tumors, the frequencies of different spinal cord tumors vary among these reports.

The aims of this study are to review surgically treated cases of primary spinal cord tumors, and to clarify the relative frequencies of these tumors in Srinagarind hospital as classified by clinical manifestation, histological types, anatomical locations and the vertebral levels at which they were found. By describing features of spinal cord tumors in Srinagarind hospital, we can determine the similarities and differences of spinal cord tumors in populations from other countries (such as pathology, race and sex) and suggest the roles that environmental, genetic, and hormonal factors may play in the etiology of spinal cord tumors.

Materials and Methods

Khon Kaen University's Srinagarind has database in which it registers all spinal surgeries performed there. From this database, we collected cases with primary spinal cord tumors that were treated surgically between January 2005 and December 2015. We excluded metastatic and spinal bone tumors from this study. The study protocol was approved by Khon Kaen University's Committee on HE591147in Human Research. In each case, we collected data of age at the time of surgery, sex, anatomical location of tumors, symptoms, duration, vertebral level location (cervical, cervicothoracic, thoracic, thoracolumbar, lumbar, lumbosacral and sacral) and pathological diagnosis.

Results

Patient demographics

There were 75 patients with primary spinal cord tumors surgically treated during the period of this study. Of the 75 patients, 42 (56 %) were females and 33 (44 %) were males. The mean age at surgery was 42.96 years (range, 3 years to 72 years, Fig. 1). When stratified by patient age in 10-year intervals, the patient groups aged 41-50 years and 51-60 years encompassed the largest number of patients with primary spinal cord tumors.; Only 1.3 % of patients were over 70 years of age. The vertebral levels of the tumors were evenly distributed (Fig.2). The largest number of primary spinal cord tumors were at the cervical (35%) and thoracic (28%) levels. ; Only one of the cases was multiple lesion, due to Neurofibromatosis type 2. The pathological diagnoses of the primary spinal cord tumors are shown in Table 1.

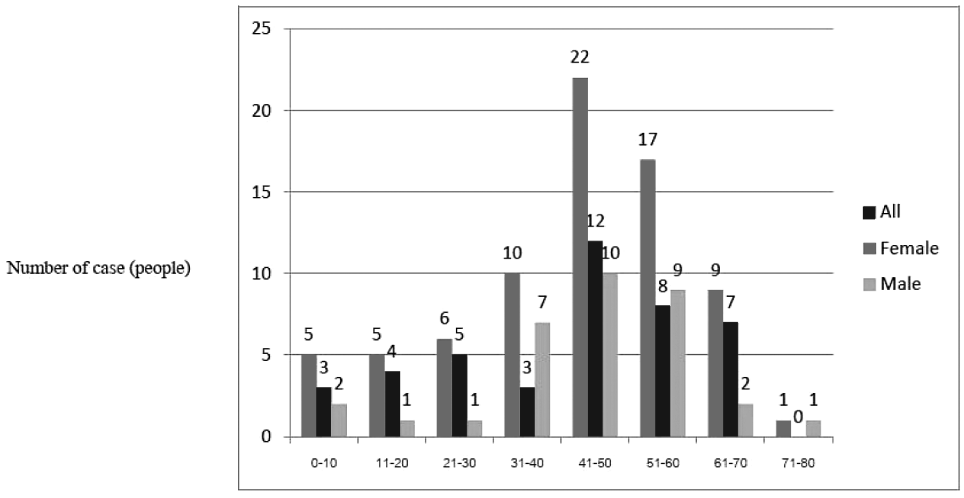

Figure 1 Age and sex distributions of patients with primary spinal cord tumors

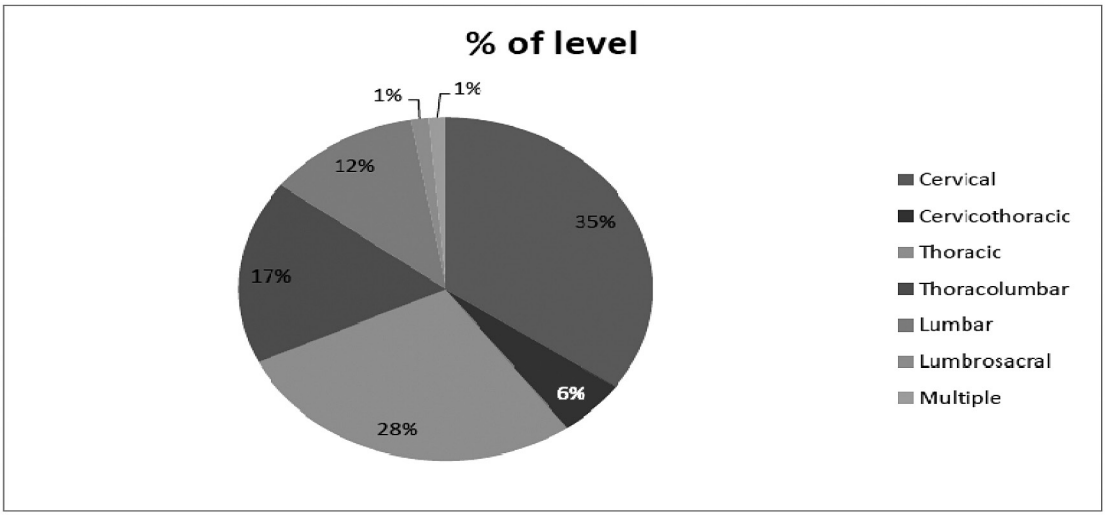

Figure 2 Vertebral level distribution of primary spinal cord tumors

Table 1 Primary spinal cord tumors by histology and sex

Pathology	Number (% of total)	Male	Female
Schwannoma	44 (59)	20	24
Ependymoma	10 (13)	3	7
Astrocytoma	6 (8)	2	4
Meningioma	3 (4)	2	1
Myxopapillary ependymoma	3 (4)	1	2
Neurofibroma	3 (4)	1	2
Others	6 (8)	4	2
Total	75 (100)	33	42

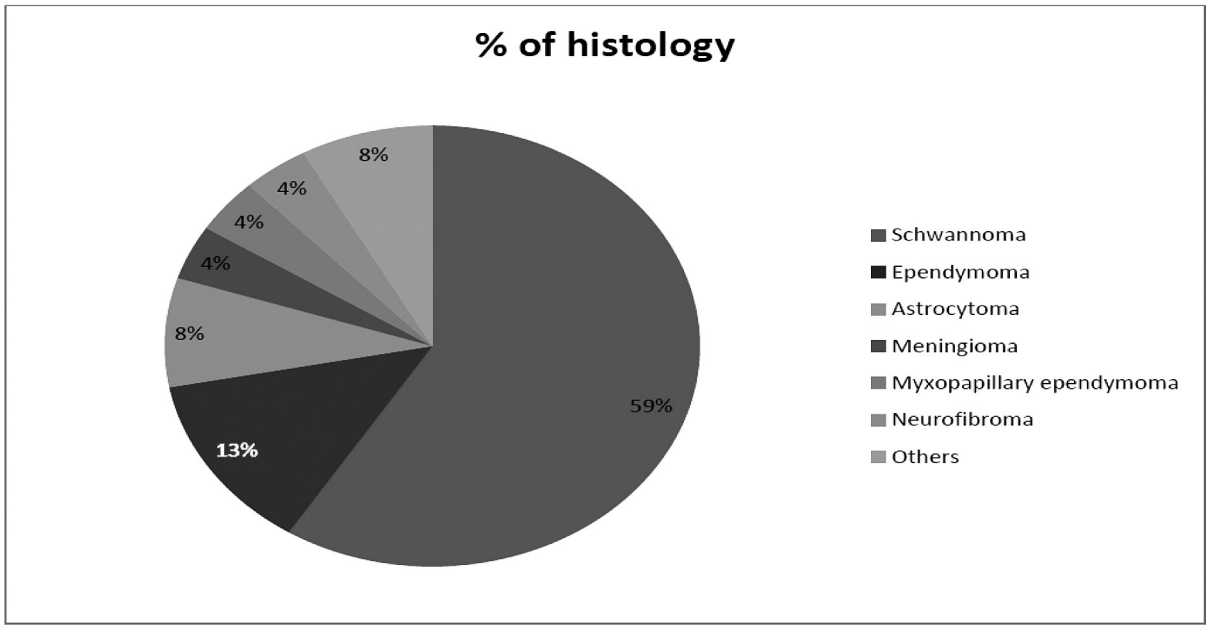

Figure 3 Percentage of primary spinal cord tumors

Table 2 Vertebral level distribution of each type of tumor

Tumor type	Cervical	Cervicothoracic	Thoracic	Thoracolumbar	Lumbar	Lumbrosacral	Multiple	Total
Schwannoma	18	0	12	6	6	1	1	44
Astrocytoma	0	1	3	2	0	0	0	6
Ependymoma	2	3	1	3	1	0	0	10
Meningioma	3	0	0	0	0	0	0	3
Myxopapillary ependymoma	0	0	1	2	0	0	0	3
Neurofibroma	1	0	0	0	2	0	0	3
Others	2	0	4	0	0	0	0	6
Total	26	4	21	13	9	1	1	75

Histological types of tumor

Histological examination of primary spinal cord tumors revealed the most common type to be schwannoma (59%), followed by ependymoma (13%), astrocytoma (8%), meningioma (4%), myxopapillary ependymoma (4%), meurofibroma (4%) and others (8%)

Of the 44 patients with Schwannomas, the tumors occurred mainly at the cervical level of 18 and thoracic levelof 12 (Table 2). They were typically diagnosed after the age of 30, and the peak incidence for Schwannomas was found from 41 to 50 years of age (Fig. 4).

There were 10 patients with ependymomas, and 3 myxopapillary ependymomas. The others were astrocytoma, meningioma, neurofibroma and the others (cavernoma, ganglioglioma, leiomyoma, lipoma, hemangioblastoma). The vertebral level distribution of each type of tumor are shown in Table. 2

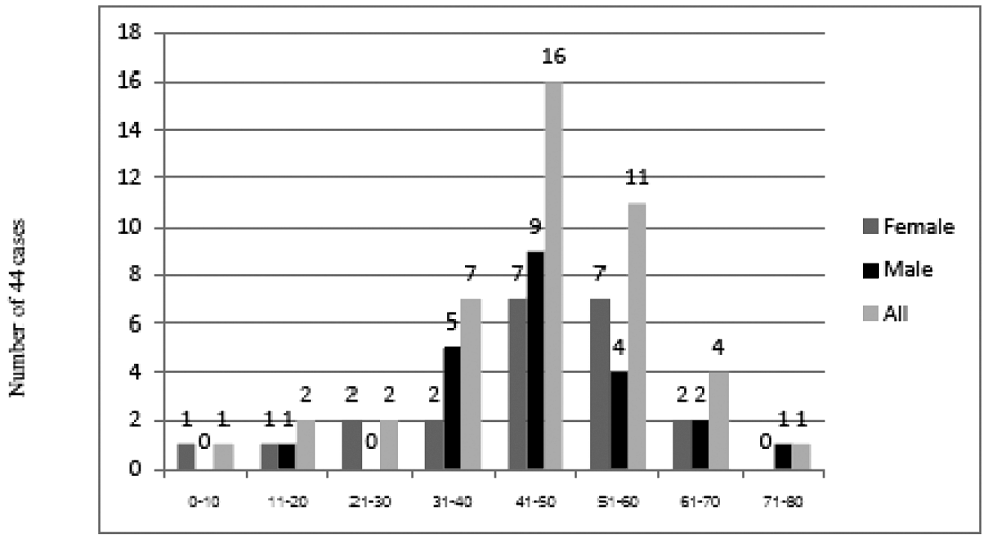

Figure 4 The characteristics of Schwannomas. Age and sex distributions

Presenting signs and symptom

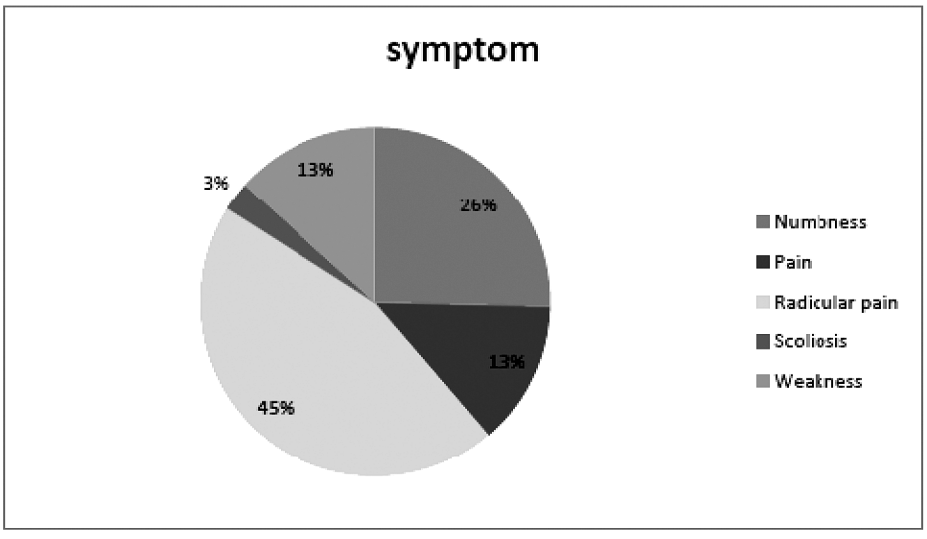

Figure 5 Characteristic of clininal presentation

Median time to diagnosis were 12.44 months. The most common clinical presentation of a primary spinal cord tumor was pain radiating out to the arm and/or leg (45%), numbness (26%), pain (13.3%) (include neck pain and back pain), weakness (13.3%), Only 2 children presented with scoliosis (Fig.5).10.7%, and 5.3% of patients presented with sphincter dysfunction and paraparesis, respectively.

There were 8 (10.7%)patients with bladder dysfunction and, 13(17.3%) with bowel and bladder disturbance. 54 (72%) of patients had normal function of bowel and bladder (Table 3). The largest number of patients with primary spinal cord tumors had motor weakness (paraplegia) and Only 4 (5.3%) patients suffered from total paraparesis (Table 4).

Table 3 Number of patients with bowel and bladder symptoms

Bowel/bladder	Number of patients	%
Bladder	8	10.7
Both	13	17.3
No	54	72.0
Total	75	100.0

Table 4 Percentage of Motor power

Motor power	Frequency	%
No active movement	4	5.3
Muscle contraction	5	6.7
Movement thru ROM w/o gravity	12	16.0
Movement thru ROM against gravity	16	21.3
Movement against some resistance	27	36.0
Movement against full resistance	11	14.7
Total	75	100.0

Table 5 Incidence of primary spinal cord tumors by series

Reference	Country	Number of case	Date	Schwannoma (%)	Meningioma (%)	Neuroepithelial tumor (%)
Ardehali[14]	Iran	108	1962-1986	40.7	33.3	16.7
Lalitha and Dastur[16]	India	326	Before 1980	39.9	25.5	20.9
Shuangsh and Panyatha[11]	Thailand	120	1956-1973	65.8	14.2	12.5
Cheang et al.[15]	Taiwan	92	1988-1995	52.2	15.1	10.9
Wen-Qing, et al.[13]	China	2,245	Before 1982	49.4	14.7	11.4
Cheng[2]	China	1,549	Before 1982	49.5	13.2	10.7
Suh, et al[12]	Korea	141	1997-1998	39.7	25.5	19.1

Discussion

This study evaluated the primary spinal cord tumors presented at Srinagarind hospital. Our study uses a spinal surgery registry to retrospectively analyze primary spinal cord tumor cases and collect detailed data about patients' age at surgery, sex, anatomical location of tumors, vertebral level of tumors, clinical presentation and pathological diagnosis.

The incidence rate of primary spinal cord tumors in our study compared with other reports out of Asia. Also similar to other reports, nerve sheath cell tumor (Schwannoma)[2, 11-15] were most frequent (Table 5). The mean age at surgery was 42.96 years. The median time until diagnosis was 12.44 months, Pain was the most common presenting symptom and may manifest asradicular pain, back pain and neck pain. Motor disturbance was the next most common presenting symptom followed by sensory loss. Sphincter disturbance was the least common presenting symptom.

Primary treatment of primary spinal cord tumors is surgical resection and predictors of outcome include preoperative functional status (limited to no neurologic deficit predicts a better outcome), histologic grade of the tumor (lower grade predicts improved chance of survival)

Conclusions

This is the first published research on primary spinal cord tumors describing the demographic characteristics, pathological features, anatomical locations, and vertebral levels of these surgically-treated tumors in Srinagarind hospital. The results were similar to those of reports from other Asian countries. Schwannoma were most frequent.

Early recognition of the signs and symptoms of primaryspinal cord tumors facilitates early diagnostic evaluationand treatment, potentially minimizes neurologic morbidity, and improves clinical outcome.

Disclosure

No potential conflicts of interest relevant to this article were reported.

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