

Presacral Schwannoma

Schwannomas, tumors arising off Schwann cells, are rare. Most of them are benign.

Acoustic schwannoma is the most famous tumor of the family.

Retroperitoneal schwannomas form 1-5% of all retroperitoneal primary tumors.

Pelvic schwannomas consist 1% of all schwannomas. Thus, they are coming too far after the head, the neck, and the upper extremities ones. Nevertheless, there are only 21 cases of presacral schwannoma reported in the english medical literature. A 40 years old man with presacral schwannoma who is successfully treated via transabdominal total excision is presented here in this report.

Schwannomas are rare benign neoplasms arising off Schwann cells derived from the neural crest. Although malignant schwannomas have been described, they arise from the transformation of plexiform neurofibromatosis, rather than malignant degeneration of the schwannoma. Schwannomas affect the sheath of peripheral nerves in the crane, neck, and upper extremities. Retroperitoneal locations of schwannoma are rare; Takatera* et al only counted 133 cases in english literature. However, to my knowledge, no more than 50 cases have been reported as pelvic retroperitoneal schwannomas. Furthermore, only 21 presacral schwannomas, mostly in women, have been reported in english literature.

Case report

A 40-year-old male patient presented with a history of both Crohn's disease and left ureteral calculi. Crohn's disease dates to 2 years ago. Whereas, the left ureteral calculi were first put in evidence 2 months ago. It was during the ultra sound screening when a pelvic mass was seen occupying the presacral space. The ultra sound study was undetermined about the nature of the mass. In contrast, CT scan with contrast infusion showed a round well- demarcated mass, measuring 8 cm, occupying the presacral space, deviated a little bit to the right of the midline, pushing forward the other pelvic organs (rectum, bladder). The mass was inhomogeneous in taking the contrast. *Figure (1). Figure (2).*



Figure (1): CT scan with contrast, sagittal section.

Round well demarcated mass in the presacral space, measuring 8 cm, and pushing forward the bladder.



Figure (2): CT scan with contrast infusion, axial section.
the mass is inhomogeneous in taking the contrast. Note how the mass is deviated from the midline of the sacrum to the right. The rectum is pushed away to the left- anterior side.

The decision was made to totally remove the tumor via anterior approach. Supported by the clear contour of the mass, the integrity of the sacrum, the absence of any neural signs and symptoms, I did not expect any difficulty in operating on.

Smoothly run out the time of the operation. Two hours and the mass has been removed by enucleation, and been outside on a lateral table, *figure (3)*, *figure (4)*. Blood loss was less than 100 ml. The patient has discharged the second postoperative day.

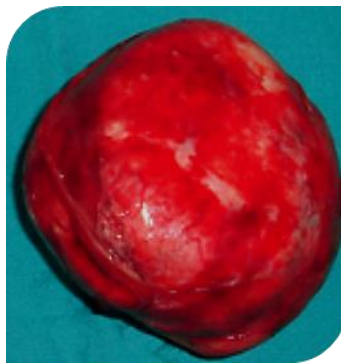


Figure (3): Macroscopic view of the resected mass.
The tumor has spherical shape with two polar elongations. It has elastic rather than hard nature.

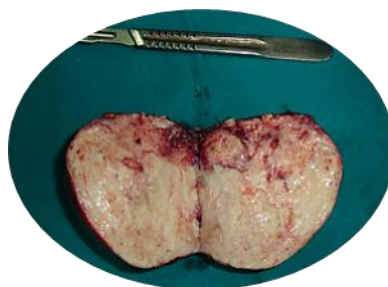


Figure (4): Macroscopic view of the resected mass.
Cut surface of the resected mass shows degenerated cystic structures and hemorrhagic foci.

Contrary to all preoperative differential diagnosis, the pathologic analysis of the resected specimen was "benign schwannoma", *figure (5)*.

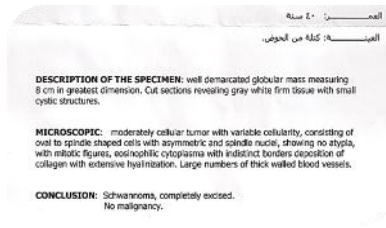


Figure (5): Pathologic report of the resected specimen.

Benign schwannoma totally excised. There also were cystic changes revealing the old age of the tumor.

Discussion:

Schwannomas are rare benign neoplasms arising from the nerve sheath. Some cases of malignant transformation have been reported. In fact, these were a transformation from plexiform neurofibromatosis rather than a malignant degeneration of previously exist benign schwannomas.

Schwannomas mostly occur in the head, neck, and the upper extremities. Acoustic schwannoma is the most popular member of the family. Retroperitoneal schwannomas are very rare; no more than 133 reported case in the english medical literature, Takatera et al*. Retroperitoneal schwannomas consist 1-5% of all primary retroperitoneal tumors. Nevertheless, just 21 reported cases, mostly in women, of presacral schwannomas are described in the medical literature.

Pelvic retroperitoneal schwannomas are classified as sacral, dumb-bell, and presacral schwannoma. Sacral schwannomas are completely confined to the sacrum. Dumb-bell schwannomas have two components; one intra-sacral whereas the other extra- sacral. Presacral schwannomas are very rare tumor entirely located in the presacral space.

Presacral schwannoma gets very large size before being detectable. In spite of its origin from the nerve sheath, it seldom causes functional disorders. The slow growth of the tumor gives the neighboring nerves the opportunity to compensate the functional loss caused by the tumor impaction on the mother nerve. There are no specific symptoms. The most presenting symptoms are those related to the rectum, bladder, nerves, compressed by the tumor mass. Most often, the tumor is discovered incidentally with rectal examination or while doing radio investigations to the pelvis for another reason.

CT, MRI, are the radio of choice. MRI has the privilege of better showing the texture, internal cystic degenerations, location, size, and the relationship of the tumor with the soft neighborhoods. CT scan superimposes in delineating the bone- tumor relationship. The presence of calcifications and cystic degenerations within the tumor are synonym to old age. Finally, the tumor location outside the midline is considered good radio sign to differentiate it from chordoma which quite respect the midline of the sacrum.

Since benign schwannomas are encapsulated tumor, total excision of the tumor is the treatment. However, piecemeal excision of the tumor is another surgical choice whenever total excision of the tumor is technically difficult, and harbors great risk of bleeding or nervous compromise. Such cases are expected each time the tumor invades the sacrum. There

is no adjuvant therapy even with partial excision. Reoccurrence rate is 11% in total excision, over 50% in partial excision.

lin CM, Kao CC, Lin TC, Cha TL, Wu ST. Giant presacral schwannoma mimicking malignancy in a man. Acta Chir Belg 2010;110:387-389.

In another context, one could read:

- *Neural Conduction, Personal View vs. International View (Innovated)*



Neural Conduction, Action Pressure Waves (Innovated)



Neural Conduction, Action Potentials (Innovated)



Neural Conduction, Action Electrical Currents (Innovated)



The Function of Action Potentials (Innovated)



The Three Phases of Neural Conduction



Neural Conduction in the Synapse (Innovated)



Sensory Receptors

- *Nodes of Ranvier, the Equalizers (Innovated)*



Nodes of Ranvier, the Functions (Innovated)



Nodes of Ranvier, Function N1 (Innovated)



Nodes of Ranvier, Function N2 (Innovated)



Nodes of Ranvier, Function N3 (Innovated)

- *The Philosophy of Pain, Pain Comes First! (Innovated)*

- *The Philosophy of Form (Innovated)*

- *Spinal Injury, pathology of Spinal Shock, Pathology of Hyperreflexia*



Spinal Shock (Innovated)



The Clonus (Innovated)



Hyperactivity Hyperreflexia (Innovated)



Hyperreflexia, Extended Sector of Reflex



Hyperreflexia, Bilateral Responses



Hyperreflexia, Multiple Responses

-

Nerve Conduction Study, Wrong Hypothesis is the Origin of Misinterpretation (Innovated)



Wallerian Degeneration (Innovated)



Neural Regeneration (Innovated)

-

Wallerian Degeneration Attacks Motor Axons, While Avoids Sensory Axons



Barr Body, the Whole Story (Innovated)



Boy or Girl, Mother Decides!



Adam's Rib and Adam's Apple, Two Faces of one Sin



The Black Hole is a (the) Falling Star?



Adam's Rib, could be the Original Sin?



Pronator Teres Syndrome, Struthers like Ligament (Innovated)

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