

Treatment of extraosseous thoracic spinal hemangiomas causing spinal cord compression

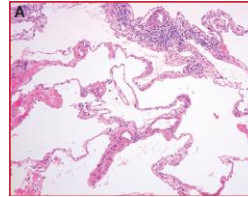
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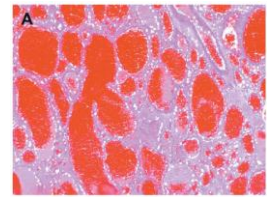
Hemangiomas

Cavernous Hemangioma



Sohn (2009)

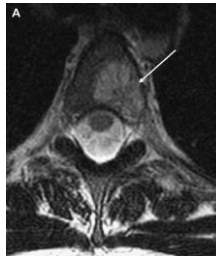
Capillary Hemangioma



Hasan (2011)

Vertebral Hemangiomas

- Most common benign tumor of the spine
- Estimated incidence: 10-12% of population
- Common incidental findings on imaging studies
 - Rarely symptomatic
- Most common in thoracolumbar spine



Acosta (2008), Hu (2006), Rodallec (2008), Smith (2010)

Natural History: Asymptomatic Hemangiomas

- Typically middle aged patients
- More common in females
- Generally intraosseous only
 - Localized to vertebral body
- Rarely progress to symptomatic hemangiomas
 - **Risk factors:** thoracic vertebra, posterior elements, age, female, cortical blistering, soft tissue extension, pregnancy

Fox (1993), Rodallec (2008)

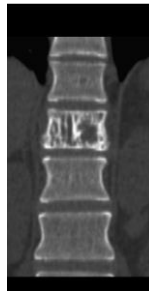
Natural History: Symptomatic Hemangiomas

- 0.9-1.2% of vertebral hemangiomas
- 2-3% of all spinal tumors
- Most common in young adults
- Symptoms
 - Pain, myelopathy, radiculopathy
- Vertebral body, usually with extension into laminae, pedicles, transverse/ spinous processes
 - Poorly defined, expanded cortex
 - End plates usually preserved

Fox (1993), Kato (2010), McAllister (1975), Rodallec (2008)

Radiological Evaluation

Computed Tomography



Magnetic Resonance

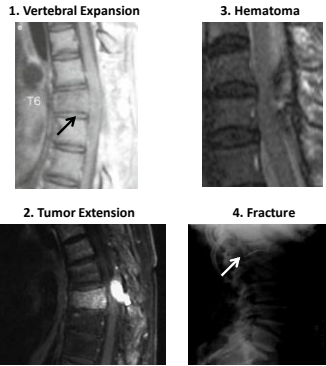


Angiography



Acosta (2006, 2008)

Presentation of Symptomatic Hemangiomas



Kato (2010), Lee(2007), Vinay(2011)

Treatment Strategy

- Transarterial embolization
 - Minimize intraoperative blood loss
- Surgical decompression & reconstruction
 - Laminectomy, corpectomy, 360° fixation
- Percutaneous vertebroplasty
- Radiation therapy
- Direct injection of ethanol

Must be tailored to specific clinical situation

Acosta (2008), Kato (2010)

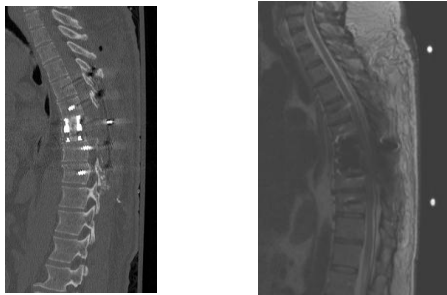
Emory Series

Patient	Age	Gender	Presenting Symptoms	Level	Extent of tumor
1	55	M	Gait abnormalities Numbness	T7	Large vertebral body mass with pleural extension of left paraspinal mass
2	75	F	Progressive paraplegia Sensory abnormalities Pathologic fracture	T10	Vertebral body mass with left paraspinal extension
3	64	M	Gait abnormalities	T6-T7	Intraspinal mass with extension into right foramen and pleural cavity along the vertebral body
4	36	M	Gait abnormalities, incontinence	T6-T9	Paraspinal extension into foramen and beyond vertebral bodies, intradural extension
5	74	F	Upper back pain, Gait abnormalities	T6	Vertebral body mass with left paraspinal extension
6	55	F	Back pain	T12	Vertebral body mass with right paraspinal extension

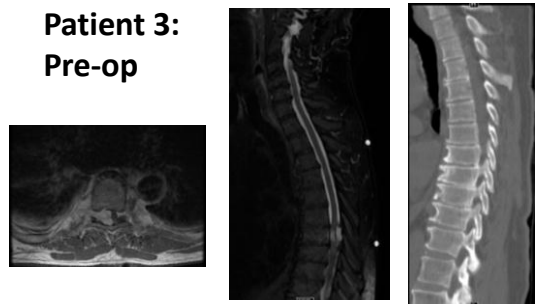
Patient 1: Pre-op



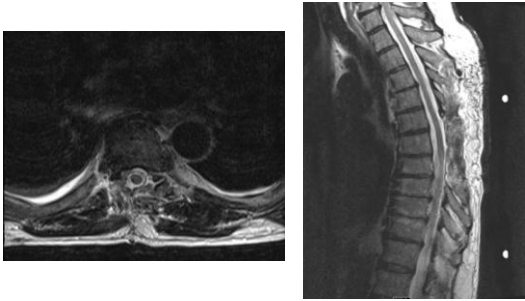
Patient 1: Post-op



Patient 3: Pre-op



Patient 3: Post-op



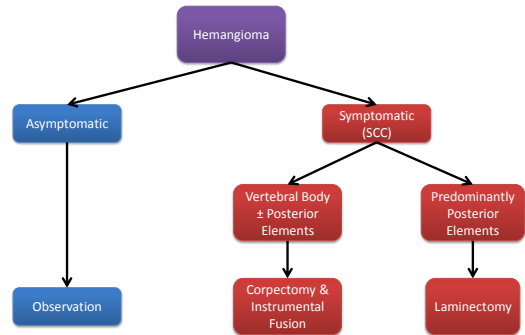
Surgical Procedures

Patient	Pre-surgical Embolization	Surgical Approach	Monitoring	Tumor Resection	EBL
1	Yes	Lateral extracavitary	SSEP, MEP	STR	4.2L
2	No	Lateral extracavitary	SSEP, MEP	STR	1.3L
3	No	Posterior Laminectomy	SSEP, MEP	GTR	600mL
4	No	Posterior Laminectomy	None	GTR	1L
5	No	Elective observation	TBD	TBD	TBD
6	(YES)	Surgery pending	(SSEP, MEP)	TBD	TBD

Follow Up

Patient	Follow Up	Outcome
1	5 mo	Improved myelopathy, ambulating well
2	6 mo	Improved UE LE motor exam improved
3	4 mo	Return of urinary function Return of ambulation
4	2 mo	Normal exam
5	6 mo	Neurologically at baseline
6		Surgery pending

Treatment Algorithm



Conclusions

- Aggressive spinal hemangiomas can extend outside the vertebrae into the epidural space
- Extrasosseous extension of a spinal hemangioma may compress the spinal cord resulting in pain and/ or myelopathy
- Good surgical outcomes are possible with individualized treatment

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