Stereotactic Radiosurgery for High-Grade Metastatic Epidural Cord Compression

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MESCC

- Metastasis to the spine or epidural space causing compression of the spinal cord
- Breast, prostate, lung and myeloid
- Between 2.5 to 14% of cancer patients
- Average survival of 3-6 months after diagnosis.
- Ambulate prior to treatment

Surgery vs EBRT

- Surgery + EBRT > EBRT alone
- Maintenance of ambulation
- Slight increase in survival

SRS

- Image guidance
- Highly conformal radiation dose to a localized lesion.
- Single treatment
- Adequate epidural dose vs Cord toxicity
- Rapid sustained pain relief within 2-4 weeks and some neurological improvement

Treatment Paradigm

- Mechanical instability
- Grade I-III --> Radiosurgery
- Grade IV-V --> Surgical decompression
- Adequate epidural dose vs Cord Toxicity

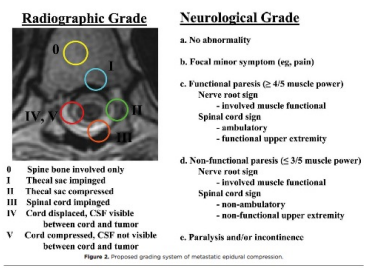
STUDY:

Investigates the outcomes of treating patients with Grade IV and V MESSC with SRS who opted for SRS as first-line therapy in lieu of surgical decompression.

Methods

- Retrospective review of Spinal Tumor Database MESCC at cervical, thoracic, or lumbar levels who received SRS between 2007-2011 and had not had prior open decompression
- 32 patients with 35 lesions had adequate radiological (median 235 days) and clinical follow-up (median 280 days)
- Reviewed for clinical and radiological response to radiosurgery.

Ryu/Rock Grading Scale

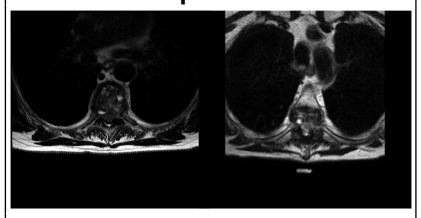


Neuro grade a,b, and c are ambulatory, grades d and e are non ambulatory

Patients characteristics

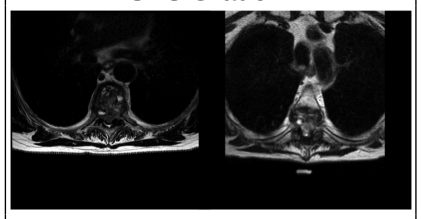
Primary tumor	N (%)
Lung	8 (25%)
Prostate	6 (18%)
Breast	5 (16%)
Others	13 (41%)
Male	21 (66%)
Female	11 (34%)
Grade IV	21 (57%)
Grade V	14 (43%)
Age Range	41-87 years
Median Age	65 years
Median Follow up time	9 months

No improvement

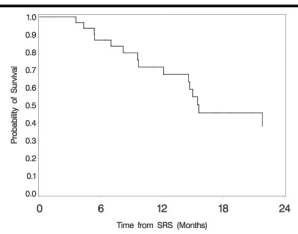


68 year old Female. Lung cancer primary. T5 level. Developed compression fracture. Required open surgical decompression

SRS Grade V



70 yr old M. Lung cancer primary. T5 level. Significant pain improvement. Post image at 65 days. Followed for 15 months



Survival of Grade IV and V patients who received SRS

Grade	Good Outcome	Bad Outcome
A,B,C	15	5
D,E	1	0

Good Outcome = Improved neurological grade or maintenance of ambulation
Bad Outcome = Worsened neurological grade

Neurologic progression = 3
Compression fracture = 2

Grade IV Outcomes

Grade	Good Outcome	Bad Outcome
A,B,C	11	3
D,E	2	0

Good Outcome = Improved neurological grade or maintenance of ambulation
Bad Outcome = Worsened neurological grade

Neurologic progression = 2
Compression fracture = 1

Grade V outcomes

Conclusions

SRS is viable treatment option for patients with high grade MESCC.
Failure rate in advance grade MESCC same as early grade MESCC
Prospective study
SRS treats tumor but does not correct for instability
Close follow up in both short term and long.

Learning Objectives

- Neurological grade favorable response 75 %
- Pain free after SRS 47% (n=15) vs 9% pre-SRS (n=3), p<0.001).

References

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