
Abstract The spine is a common site of involvement in patients with bone metastases. Apart from pain, hypercalcemia, and pathologic fracture, progressive tumor can result in neurologic deterioration caused by spinal cord compression or cauda equina involvement. The treatment of spinal bone metastases depends on histology, site of disease, extent of epidural disease, extent of metastases elsewhere, and neurologic status. Treatment recommendations must weigh the risk-benefit profile of external beam radiation therapy (EBRT) for the particular individual's circumstance, including neurologic status, performance status, extent of spinal disease, stability of the spine, extra-spinal disease status, and life expectancy. Patients with spinal instability should be evaluated for surgical intervention. Research studies are needed that evaluate the combination or sequencing of localized therapies with systemic therapies including chemotherapy, hormonal therapy (HT), osteoclast inhibitors (OI), and radiopharmaceuticals. The roles of stereotactic body radiation therapy (SBRT) in the management of spinal oligometastasis, radioresistant spinal metastasis, and previously irradiated but progressive spinal metastasis are emerging, but more research is needed to validate the findings from retrospective studies. The American College of Radiology Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed every 2 years by a multidisciplinary expert panel. The
guideline development and review include an extensive analysis of current medical literature from peer-reviewed journals and the application of a well-established consensus methodology (modified Delphi) to rate the appropriateness of imaging and treatment procedures by the panel. In those instances where evidence is lacking or not definitive, expert opinion may be used to recommend imaging or treatment.

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3. Malignant extradural spinal cord compression in men with prostate cancer. [Review]
Loblaw A. Mitera G.
[Journal Article. Review]
UI: 21725245
PURPOSE OF REVIEW: Malignant epidural spinal cord compression (MESC) is a dreaded complication of malignancy and is fortunately not common. Approximately 7% of men dying of prostate cancer will have at least one episode of MESC during their lifetime. Treatment needs to be individualized and estimating the prognosis is critical to achieving a balance between effectiveness therapy and the burden of treatment.
RECENT FINDINGS: A consortium of multiple centers has defined prognosis scales, and multiple randomized studies have helped define the optimal dose fractionation schedule for patients getting radiotherapy.
SUMMARY: Simple prognosis scales available to assist the clinician are reviewed. For poor prognosis patients, a single fraction of 8 Gy is just as effective as multiple fractions, however, are much more convenient. For good prognosis patients, surgery and radiation should be considered. For patients not getting surgery, enrollment in clinical trials of single vs. multiple fractions of radiation should be a priority. For high-risk patients, screening strategies are being developed and hold promise for maintaining ambulation throughout the patients' lifetime.

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   Jones J. McMenamin E. Quon H.
   [Comment. Journal Article]
   UI: 21809514
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   Rades D. Freundt K. Meyners T. Bajrovic A. Basic H. Karstens JH. Adamietz IA. Wildfang I. Rudat V. Schild SE. Dunst J.
   [Comparative Study. Journal Article]
   UI: 20579816
   PURPOSE: Radiotherapy alone is the most common treatment for metastatic spinal cord compression (MSCC) from relatively radioresistant tumors such as renal cell carcinoma, colorectal cancer, and malignant melanoma. However, the results of the "standard" regimen 30 Gy/10 fractions need to be improved with respect to functional outcome. This study investigated whether a dose escalation beyond 30 Gy can improve treatment outcomes.

   METHODS AND MATERIALS: A total of 91 patients receiving 30 Gy/10 fractions were retrospectively compared to 115 patients receiving higher doses (37.5 Gy/15 fractions, 40 Gy/20 fractions) for motor function and local control of MSCC. Ten further potential prognostic factors were evaluated: age, gender, tumor type, performance status, number of involved vertebrae, visceral or other bone metastases, interval from tumor diagnosis to radiotherapy, pretreatment ambulatory status, and time developing motor deficits before radiotherapy.

   RESULTS: Motor function improved in 18% of patients after 30 Gy and in 22% after higher doses \(p = 0.81\). On multivariate analysis, functional outcome was associated with visceral metastases \(p = 0.030\), interval from tumor diagnosis to radiotherapy \(p = 0.010\), and time developing motor deficits \(p < 0.001\). The 1-year local control rates were 76% after 30 Gy and 80% after higher doses, respectively \(p = 0.64\). On multivariate analysis, local control was significantly associated with visceral metastases \(p = 0.029\) and number of involved vertebrae \(p = 0.043\).
CONCLUSIONS: Given the limitations of a retrospective study, escalation of the radiation dose beyond 30 Gy/10 fractions did not significantly improve motor function and local control of MSCC in patients with relatively radioresistant tumors. Copyright 2011 Elsevier Inc. All rights reserved.

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7. Palliative radiotherapy--new approaches. [Review]
van Oorschot B.  Rades D.  Schulze W.  Beckmann G.  Feyer P.
[Journal Article.  Review]
UI: 21600376
Most cancer patients will require radiation therapy some time during their disease. Thirty percent to 50% of all radiation treatments are palliative, either to alleviate symptoms or prophylactic to prevent deterioration of quality of life from local progressive disease. Radiotherapy is a locally effective tool. It typically causes no systemic and mostly mild acute side effects. We will provide an overview of principles, decision-making, and new developments in palliative radiation therapy. Copyright 2011 Elsevier Inc. All rights reserved.

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10. Spinal surgery for palliation in malignant spinal cord compression. [Review]
Akram H.  Allibone J.
Clinical Oncology (Royal College of Radiologists). 22(9):792-800, 2010 Nov.
[Journal Article.  Review]
UI: 20702075
Malignant spinal cord compression is an important neuro-oncological emergency, the management of which has been changing throughout the last 30 years. We hereby attempt to present an overview of this pathological entity with general management concepts, paying special
attention to the palliative surgical treatments available, the decision-making process and the new emerging treatment modalities. Copyright 2010 The Royal College of Radiologists. Published by Elsevier Ltd. All rights reserved.

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11.  
The surgical management of metastatic epidural compression of the spinal cord. [Review] [58 refs]  
Quraishi NA.  Gokaslan ZL.  Boriani S.  
[Journal Article.  Review]  
UI: 20675746  
Metastatic epidural compression of the spinal cord is a significant source of morbidity in patients with systemic cancer. With improved oncological treatment, survival in these patients is improving and metastatic cord compression is encountered increasingly often. The treatment is mostly palliative. Surgical management involves early circumferential decompression of the cord with concomitant stabilisation of the spine. Patients with radiosensitive tumours without cord compression benefit from radiotherapy. Spinal stereotactic radiosurgery and minimally invasive techniques, such as vertebroplasty and kyphoplasty, with or without radiofrequency ablation, are promising options for treatment and are beginning to be used in selected patients with spinal metastases. In this paper we review the surgical management of patients with metastatic epidural spinal cord compression. [References: 58]

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17.  
Radiation for spinal metastatic tumors. [Review] [58 refs]  
Swift PS.  
[Journal Article.  Review]
Radiotherapeutic management of vertebral metastases varies based on the extent of disease within the spine and systemically, the histology of the tumor, and the life expectancy of the patient. The goals of pain reduction, structural stability of the axial skeleton, and maintenance of local control for the remainder of the patient's life guide the decision to proceed with a short simple course of standard therapy or a more complex approach with stereotactic regimens. The complex and rigorous processes involved in stereotactic radiotherapy for the spine require close cooperation among the radiation oncologist, neurosurgeon, orthopedic surgeon, and medical oncologist, but the clinical results show that the result is an enhanced quality of life for the patient. [References: 58]

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18. Destroying myths.
Moeen ul Haq S. Butt M. Ali R. Bhattacharya A.
[Journal Article]
UI: 18403574
Palliative care emergencies such as spinal cord compression require prompt diagnosis and treatment to get the best results. Hospitals dealing with these emergencies need to develop pathways of care for these patients based on best evidence derived from hard data. The authors looked at all spinal cord compressions that presented to their hospital over a 10-year period. The authors found that the commonest day of presentation of this condition was on Mondays and not Fridays as had been widely believed prior to this study. Hospitals are encouraged to look at hard data and not anecdotes when developing pathways of care for their patients.

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19. Palliative radiotherapy knowledge among community family physicians and nurses.
BACKGROUND: Primary care physicians and nurses care for patients with advanced cancer and need to be aware of the role for palliative radiotherapy (PR).

METHODS: We surveyed 250 family physicians, family medicine residents, and nurses attending oncology educational symposia to determine their knowledge of PR.

RESULTS: The survey response rate was 59%, and most respondents (77%) were involved with the care of cancer patients. Many (58%) thought that their knowledge of PR was insufficient for their needs. Although bone metastasis and spinal cord compression were frequently recognized indications for PR, only 50% of other assessed indications for PR were correctly identified. Almost all respondents stated that they wanted to learn more about PR.

CONCLUSIONS: More education regarding PR is required for primary care physicians and nurses caring for cancer patients.

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Diagnosis and management of malignant spinal cord compression: part 2. [Review] [39 refs]
Drudge-Coates L. Rajbabu K.
[Journal Article.  Review]
UI: 18681345

Malignant spinal cord compression (MSCC) is a particularly challenging area of cancer care where early diagnosis and expert multidisciplinary care and rehabilitation are paramount in optimising quality of life for the affected individual. The effects of MSCC can range from minor sensory, motor and autonomic changes to severe pain, and complete paralysis that significantly affects the remainder of a patient's quality of life. When caught early, the symptoms of MSCC can be prevented, minimised or possibly reversed. However, failure to recognise the condition and its serious nature, together with limited awareness of the importance of early referral for treatment, can result in irreversible paralysis. Therefore, it is essential that nurses providing clinical care for these at-risk patients are able to identify early symptoms, and undertake a thorough patient history and examination; educating the patient and their family about the signs and symptoms of MSCC that need to be reported as soon as they occur. [References: 39]
21.
Spinal cord compression in patients with advanced metastatic cancer: "all I care about is walking and living my life". [Review] [101 refs]
Abrahm JL. Banffy MB. Harris MB.
[Case Reports. Journal Article. Research Support, Non-U.S. Gov't. Review]
UI: 18314436
As 1 of the 12,700 US cancer patients who, each year, develops metastatic spinal cord compression, Ms H wishes to walk and live her life. Sadly, this wish may be difficult to fulfill. Before diagnosis, 83% to 95% of patients experience back pain, which often is referred, obscuring the site(s) of the compression(s). Prediction of ambulation depends on a patient's ambulatory status before therapy and time between developing motor defects and starting therapy. Ambulatory patients with no visceral metastases and more than 15 days between developing motor symptoms and receiving therapy have the best rate of survival. To preserve ambulation and optimize survival, magnetic resonance imaging should be performed for cancer patients with new back pain despite normal neurological findings. At diagnosis, counseling, pain management, and corticosteroids are begun. Most patients are offered radiation therapy. Surgery followed by radiation is considered for selected patients with a single high-grade epidural lesion caused by a radioresistant tumor who also have an estimated survival of more than 3 months. Team discussions with the patient and support network help determine therapy options and include patient goals; assessment of risks, benefits, and burdens of each treatment; and discussion of the odds of preserving prognosis of ambulation and of the effect of therapy on the patient's overall prognosis. Rehabilitation improves impaired function and its associated depression. Clinicians can help patients cope with transitions in self-image, independence, family and community roles, and living arrangements and can help patients with limited prognoses identify their end-of-life goals and preferences about resuscitation and entering hospice.
22.
Role of corticosteroids in palliative care. [Review] [47 refs]
Shih A.  Jackson KC 2nd.
[Journal Article.  Review]
UI: 18032321
Corticosteroids have been used extensively since cortisone was first synthesized in the 1950s. Glucocorticoids are derived from cortisone and are used in treatments for inflammation, dermatitis, allergic reactions, asthma, hepatitis, lupus erythematosus, nausea, vomiting and inflammatory bowel diseases. In the setting of palliative care, glucocorticoids have many uses, including many symptoms of malignancy, nausea, vomiting, depression, fatigue, anorexia and cachexia. [References: 47]

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27.
What happens to people after malignant cord compression? Survival, function, quality of life, emotional well-being and place of care 1 month after diagnosis.
[Journal Article.  Research Support, Non-U.S. Gov't]
UI: 17305255
AIMS: To present further findings from the Scottish Cord Compression Study, in which the diagnosis, management and outcome of 319 patients with a definitive diagnosis of malignant cord compression (MCC) were examined.
MATERIALS AND METHODS: In total, 256 (80%) patients in the study consented to be interviewed shortly after diagnosis and at follow-up interviews. One hundred and twenty-eight patients were interviewed 1 month after diagnosis (40% of the total; 57% [128/224] of patients alive 1 month after diagnosis; 68% [128/188] of patients who also consented to follow-up). Survival data of the whole MCC population and data from interviewing 128 patients 1 month after diagnosis are presented.
RESULTS: The median survival of all patients was 59 days (95% confidence interval [CI] 43-75 days). The median Karnofsky performance status was 50 (interquartile range 40-60), indicating a need for considerable nursing and medical care, and was poorest for patients with lung cancer (median 40; interquartile range 30-60). The place of care was dependent on mobility at diagnosis; patients walking at diagnosis were more likely to be at home, whereas patients requiring assistance or who were unable to walk were more likely to be in institutional care (P = 0.019). Mobility and bladder function were determined by mobility and bladder function at diagnosis (P < 0.001). Of those unable to walk at diagnosis, 7% regained full mobility. Of those catheterised at presentation, 28% regained full bladder function. Forty-seven per cent (56/120, 95% CI 40-54) of patients interviewed were in pain despite oncological treatment and 18% (22/120; 95% CI 8-19) reported the pain as severe (visual analogue scale > 7). The median quality-of-life (Schedule for Evaluation of Individualised Quality of Life) score was 72/100, and was higher in patients with a better performance status (P = 0.026). A minority of patients (8%) screened positive for anxiety and depression using the Hospital Anxiety and Depression scale.

CONCLUSIONS: Notwithstanding the difficulties in following up this group of patients, this paper reports valuable findings detailing the experience of patients with MCC 1 month after diagnosis and treatment.

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28.
Is short-course radiotherapy with high doses per fraction the appropriate regimen for metastatic spinal cord compression in colorectal cancer patients?.
Rades D. Dahm-Daphi J. Rudat V. Schulte R. Stalpers LJ. Veninga T. Hoskin PJ.
[Comparative Study. Journal Article. Multicenter Study]
UI: 17149577

BACKGROUND AND PURPOSE: Various radiotherapy (RT) schedules are used worldwide for metastatic spinal cord compression (MSCC). Every treatment session may cause discomfort to the mostly debilitated patients. A short overall treatment time appears beneficial, especially for MSCC patients with an extremely poor survival such as colorectal cancer patients. This study evaluates whether short-course RT (1 x 8 Gy given in 1 day, 5 x 4 Gy given in 1 week) is as effective as long-course RT (10 x 3 Gy given in 2 weeks, 15 x 2.5 Gy given in 3 weeks, 20 x 2 Gy
given in 4 weeks) and whether higher doses per fraction (more cell kill) and shorter overall treatment time (less repopulation) can compensate for lower total doses.

PATIENTS AND METHODS: 81 colorectal cancer patients with MSCC were retrospectively investigated. The following potential prognostic factors for functional outcome were analyzed: age, sex, performance status, number of involved vertebrae, ambulatory status before RT, time of developing motor deficits before RT, radiation regimen (short-course, n = 31, vs. long-course RT, n = 50).

RESULTS: Improvement of motor function occurred in 14% of the patients, no change in 68%, and deterioration in 19%. There were no significant differences between short-course and long-course RT regarding improvement or deterioration of motor function (p = 0.50). Time of developing motor deficits before RT was the only significant prognostic parameter for functional outcome (> 7 days better than 1-7 days; p < 0.001).

CONCLUSION: No significant difference was observed between short-course and long-course RT with respect to functional outcome. In the clinical situation, short-course RT may be considered preferable, as it means less patient discomfort.

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30.
Metastatic epidural spinal cord compression: update on management. [Review] [29 refs]
Byrne TN. Borges LF. Loeffler JS.
[Journal Article. Review]
UI: 16769419
Until recently, patients with metastatic epidural spinal cord compression (MESCC) were routinely treated with corticosteroids and radiotherapy (RT). However, major advances in imaging, recognition of new prognostic factors, and new techniques in RT and surgery have led to a number of management choices that need to be considered when treating a patient with MESCC. In our view, the management should be individualized taking into account many variables. We present here some of the advances we believe are among the most important. A historical background to the modern management of this condition is first presented. [References: 29]

Link to the Ovid Full Text or citation:
32. Effectiveness and toxicity of single-fraction radiotherapy with 1 x 8 Gy for metastatic spinal cord compression.
Rades D. Stalpers LJ. Hulshof MC. Zschenker O. Alberti W. Koning CC.
Radiotherapy & Oncology. 75(1):70-3, 2005 Apr.
[Clinical Trial. Journal Article. Research Support, Non-U.S. Gov’t]
UI: 15878103
Toxicity and functional outcome were evaluated in 199 MSCC-patients irradiated with 1 x 8 Gy. Motor function improved in 54/199 patients (27%). Patients who regained walking ability were 20/78 (26%). Long-term-survivors (> or =12 months) who needed re-irradiation for in-field-recurrence were 19/65 (29%). Acute toxicity was mild, late toxicity not observed. A randomised trial comparing single-fraction RT to multi-fraction RT is mandatory.

33. Evidence-based review of the surgical management of vertebral column metastatic disease.
[Review] [69 refs]
Ryken TC. Eichholz KM. Gerszten PC. Welch WC. Gokaslan ZL. Resnick DK.
[Journal Article. Review]
UI: 15323468
OBJECT: Significant controversy exists over the most appropriate treatment for patients with metastatic disease of the vertebral column. Treatment options include surgical intervention, radiotherapy, or a combination of the two; nevertheless, a standard of care that yields the best survival, outcome, and quality of life has not been established. The purpose of this review was to determine the foundation in the literature of views favoring surgical intervention for spinal metastatic disease.
METHODS: A search of the English-language literature published between 1964 and 2003 was performed for the subject of spinal metastatic disease. Papers were selected based on the inclusion criteria described, and evidentiary information was compiled and graded using previously described methods.

CONCLUSIONS: Although there is insufficient evidence to support a standard for surgical treatment in patients with metastatic spinal disease, the authors present guidelines and recommendations based on the evidence provided by the current literature. [References: 69]

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34.
Treatment of metastatic spinal epidural disease: a review of the literature. [Review] [93 refs]
Klimo P Jr.  Kestle JR.  Schmidt MH.
[Journal Article.  Review]
UI: 15323458

OBJECT: Spinal cord compression is one of the most dreaded complications of metastatic cancer. It can lead to a number of sequelae, including pain, spinal instability, neurological deficits, and a reduction in the patient's quality of life. Except in selected circumstances, treatment is palliative. Treatment options include surgery, radiation, and chemotherapy. The goal of this study was to summarize the existing data on the outcomes of various treatment methods for metastatic spinal epidural disease and to make appropriate recommendations for their use.

METHODS: The authors used a search strategy that included an electronic database search, a manual search of journals, analysis of bibliographies in relevant review papers, and consultation with the senior author. There is good evidence, including Class I data, that steroid drugs constitute a beneficial adjunctive therapy in patients with myelopathy from epidural compression. Historically, conventional radiation therapy has been viewed as the first-line treatment because it has been shown to be as effective as a decompressive laminectomy, with a lower incidence of complications (Class II data). Nevertheless, in the last 20 years there has been remarkable progress in surgical techniques and technology. Currently, the goals of surgery are to achieve a circumferential decompression of the spinal cord, and to reconstruct and immediately stabilize the spinal column. Results in a large body of literature support the belief that surgery is better at retaining or regaining neurological function than radiation and that surgery is highly effective in relieving pain. Most of the data on the treatment of metastatic spinal disease are Class II or III,
but the preliminary results of a well-designed, randomized controlled trial in which surgery is compared with standard radiation therapy represents the first Class I data. CONCLUSIONS: As the number of treatment options for metastatic spinal disease has grown, it has become clear that effective implementation of these treatments can only be achieved by a multidisciplinary approach. [References: 93]

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38.
A comparison of two different radiation schedules for metastatic spinal cord compression considering a new prognostic factor.
Rades D. Karstens JH.
[Journal Article]
UI: 12386787
BACKGROUND: Patients with metastatic spinal cord compression are often presented for emergency radiotherapy. The optimum radiotherapeutic regimen is still debated, studies comparing different radiation schedules on therapeutic outcome are scarce. This analysis compares the effect of two schedules on motor function considering three relevant prognostic factors (type of primary tumor, pre-treatment ambulatory status, time of developing motor deficits before radiotherapy).

PATIENTS AND METHODS: In this retrospective analysis, two radiation schedules, 30 Gy/10 fractions (n=78) and 37.5 Gy/15 fractions (n = 75), applied due to motor deficits caused by metastatic spinal cord compression, were compared for post-treatment functional outcome and ambulatory status. Response and ambulatory status were evaluated directly, 3, 6 and 12 months after radiotherapy. For functional outcome a multivariate analysis including radiation schedule and the relevant prognostic factors was performed.

RESULTS: Between the two radiation schedules no significant difference was observed for post-treatment ambulatory rates (p values: 0.450-0.888) and for functional outcome (p values: 0.940-0.999). According to the multivariate analysis, the strongest predictors for functional outcome were the time of developing motor deficits before radiotherapy (p < 0.001) and the pre-treatment
ambulatory status (p < 0.001), followed by the type of primary tumor (p = 0.058). For the radiation schedule a significant impact on functional outcome was not observed (p = 0.822).

CONCLUSIONS: The two radiation schedules were comparable for functional outcome. The less time consuming schedule (30 Gy/10 fractions) can be recommended in metastatic spinal cord compression, as life expectancy is markedly reduced in the majority of these patients.

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39.
Neurological outcome following laminectomy in spinal metastases.
Schoeggl A.  Reddy M.  Matula C.
[Journal Article]
UI: 12080464
STUDY DESIGN: Retrospective outcome measurement study.
OBJECTIVES: Patients suffering from malignant tumour disease and metastases to the spine develop a variety of clinical complaints including radicular symptoms and/or spinal cord compression syndromes. Palliative decompressive laminectomy with total or partial tumour resection is an acknowledged method of treatment, despite controversy.
SETTING: The Department of Neurosurgery of the University of Vienna.
METHOD: Patients suffering from metastases with predominant infiltration of the dorsal epidural parts, or patients who could not be operated on via an anterior approach, were included. Eighty-four patients who met these criteria underwent decompressive laminectomy with total or partial tumour removal. The study analyzed motor function, pain relief and continence in a 2- and 4-month post-operative follow-up. According to the criteria of motor performance, 20% of the patients had been mobile pre-operatively.
RESULTS: In the immediate post-operative period 45%, after 2 months 33% and after 4 months 26%, were considered mobile. None of the paraplegic patients showed functional improvement. The median survival time was 6.5 months. Pre-operatively, 56% of the patients had shown continence dysfunction. Post-operatively, 38%, and after 2 months 46% of the patients, developed continence disorders. A significant reduction in analgesic medication was also observed in the post-operative period.
CONCLUSION: In our series, palliative laminectomy with total or subtotal tumour reduction in patients with malignant spinal metastatic disease resulted in amelioration of motor function, pain
and continence and therefore improved the patients’ quality of life. The improvement in quality of life shows that this method is a valuable option in neurosurgical therapy, except for cases with pre-operative paraplegia. However, in patients with severe pre-operative paraparesis, the authors recommend laminectomy only in very exceptional cases, because of the poor post-operative neurological results.

40.
Spinal cord compression--a personal and palliative care perspective.
Baines MJ.
[Journal Article]
UI: 12069122
Malignant spinal cord compression is recognized as an oncological emergency. In spite of this, treatment in the U.K. varies widely from one area of the country to another. The reported survey shows that this variation is especially noticeable at weekends. Palliative care physicians and clinical nurse specialists working in the community are trained in the recognition of cord compression and are able to improve the early diagnosis and referral of these patients. In addition, they have an essential role in the follow-up of those who remain paraplegic.

42.
The role of vertebroplasty in metastatic spinal disease. [Review] [31 refs]
Pilitsis JG. Rengachary SS.
Neurosurgical Focus. 11(6):e9, 2001 Dec 15.
[Journal Article. Review]
UI: 16464001
Many advances have been made in the treatment of metastatic spinal disease over the last few decades. Radiotherapy offers benefit and pain relief to many patients; however, this modality provides minimal vertebral stabilization. Surgical management consists of decompression and complex fusions. Vertebroplasty offers an adjuvant therapy to both radiotherapy and surgery by providing additional stabilization and pain relief. The results of case studies suggest that including vertebroplasty in the management of these patients is beneficial. In this article the authors review the role of vertebroplasty in metastatic spinal disease. [References: 31]

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43.  
Metastatic spinal tumors. [Review] [39 refs]  
Heary RF.  Bono CM.  
Neurosurgical Focus.  11(6):e1, 2001 Dec 15.  
[Journal Article.  Review]  
UI: 16463992  
Metastatic spinal tumors are the most common type of malignant lesions of the spine. Prompt diagnosis and identification of the primary malignancy is crucial to overall treatment. Numerous factors affect outcome including the nature of the primary cancer, the number of lesions, the presence of distant nonskeletal metastases, and the presence and/or severity of spinal cord compression. Initial management consists of chemotherapy, external beam radiotherapy, and external orthoses. Surgical intervention must be carefully considered in each case. Patients expected to live longer than 12 weeks should be considered as candidates for surgery. Indications for surgery include intractable pain, spinal cord compression, and the need for stabilization of impending pathological fractures. Whereas various surgical approaches have been advocated, anterior-approach surgery is the most accepted procedure for spinal cord decompression. Posterior approaches have also been used with success, but they require longer-length fusion. To obtain a stable fixation, the placement of instrumentation, in conjunction with judicious use of polymethylmethacrylate augmentation, is crucial. Preoperative embolization should be considered in patients with extremely vascular tumors such as renal cell carcinoma. Vertebroplasty, a newly described procedure in which the metastatic spinal lesions are treated via a percutaneous approach, may be indicated in selected cases of intractable pain caused by non- or minimally fractured vertebrae. [References: 39]
The surgical treatment of metastatic disease of the spine.
Hatrick NC. Lucas JD. Timothy AR. Smith MA.
[Journal Article]
UI: 10974383

BACKGROUND AND PURPOSE: The spine is the commonest site for skeletal metastases. The majority of patients with spinal metastases can be managed conservatively, at least initially, but a significant number will develop complications, either neurological or mechanical, requiring surgical intervention. This paper emphasizes the need for a spinal surgeon to be involved early in the care of these patients.

MATERIALS AND METHODS: Forty-two patients undergoing surgery for metastatic disease of the spine between January 1995 and June 1997 were reviewed. Thirty-five of the patients had 'instability' pain secondary to pathological vertebral fracture, 25 of whom also had radicular pain secondary to nerve root compression. Six patients had radicular pain but no symptoms of instability. Two of these patients had symptoms of spinal claudication and one further patient had symptoms of spinal claudication alone. Forty of the patients had evidence of thecal compression on magnetic resonance imaging scans and 29 had neurological signs. According to the grading of Frankel (Paraplegia 7 (1969) 179), 14 had a major neurological deficit and 15 had a minor neurological deficit. All patients underwent decompression of the cord or nerve roots and spinal stabilization, 25 via a posterior approach, 15 via an anterior approach and two combined.

RESULTS: Post-operatively pain improved in 38 of the 42 patients (90%), the neurological deficit in 20 of the 29 patients with a deficit (69%) and the ambulatory ability in 25 of the 32 patients (78%) with very restricted mobility.

CONCLUSIONS: Identification of the cause of a patient's symptoms allows appropriate surgical intervention with favourable results.
Assessing suspected spinal cord compression: a multidisciplinary outcomes analysis of 342 episodes.


[Journal Article. Research Support, U.S. Gov't, P.H.S.]

UI: 9926972

The object of this work was to evaluate the assessment and document the outcomes of cancer patients with suspected spinal cord compression (SCC). In a retrospective cohort study of 342 episodes of suspected SCC in cancer patients evaluated by computed tomography (CT) of the spine, a multidisciplinary team of neurologists, radiologists, and oncologists assessed the impact of varying the anatomical criterion for SCC and including new SCC diagnosed shortly after definitive radiographical imaging. We developed a logistic regression model to identify independent clinical predictors of SCC, including the natural history of the underlying cancer as well as neurological and radiological risk factors. Management of suspected SCC infrequently involved neurology consultation (21% of episodes). The frequency of SCC increased more than four-fold when the definition was expanded to include epidural cancer rather than spinal cord displacement only (36% vs. 8%), and 90-day clinical follow-up identified few new lesions not evident on definitive imaging studies. Clinical information about the course of cancer (documentation and duration of metastatic cancer) added independent predictive information to that yielded by neurological assessment and prior imaging studies in a multiple regression model. The a priori predicted risk of SCC, which ranged from 4% to 87% in this study, may vary enough to affect treatment strategies, although our population may have excluded very-low-risk patients. Consistent anatomical definitions of SCC, clinical follow-up of definitive imaging studies and the addition of information on the natural history of cancer to traditional neurological and radiographical evaluation may all improve clinical assessment of suspected SCC in cancer patients.

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Radiation for bone metastases: conventional techniques and the role of systemic radiopharmaceuticals. [Review] [96 refs]
Janjan NA.
[Journal Article. Review]
UI: 9362430

Pain management often is difficult in patients with bone metastases. Metastatic disease represents >40% of oncologic practice, and >70% of patients with metastatic disease have uncontrolled cancer-related pain. Significant morbidity caused by pathologic fracture and spinal cord compression can result from untreated bone metastases. Representing both a manifestation of systemic disease as well as causing localized symptoms, bone metastases require a multidisciplinary therapeutic approach. Radiation therapy provides both localized and systemic treatment options in addition to chemohormonal therapies and surgery. External beam irradiation provides palliation in >70% of patients through tumor regression of a localized lesion. Systemic radiopharmaceuticals treat multifocal disease either alone or as an adjuvant to external beam irradiation. Efficient and comprehensive management of bone metastases is imperative because of the associated symptoms, prior therapies, complex underlying medical problems, and clinical presentations that often require emergent interventions. Intensification of pain may be observed with hormonal therapy and systemic radiopharmaceuticals. Symptomatic relief from antineoplastic therapies generally requires 4-12 weeks and may be related to reossification. Symptoms, occurring due to the disease and/or while awaiting response to therapy, must be aggressively managed. Persistent or recurrent pain after therapy may be due to bony instability or fracture before reossification occurs. An Interdisciplinary Bone Metastases Clinic, with representatives from Diagnostic Radiology, Medical Oncology, Nuclear Medicine, Orthopedic Surgery, Pain and Symptom Management, Physical Medicine and Rehabilitation, and Radiation Oncology, was developed that allows coordinated evaluation, treatment, and symptom management of these complex clinical presentations. [References: 96]