

Case report: Seeding metastases after percutaneous vertebroplasty procedure for pathological fracture: a rare complication

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SUMMARY

Percutaneous balloon vertebroplasty (PVP) is an effective treatment for pathological vertebral compression fractures in oncological patients. The procedure is considered safe and the analgesic effect is fast and long lasting. Seeding metastases after PVP are a rare complication. At present, there is no standard of care how to prevent or treat this complication. Further research is necessary to determine preventive measures. (BELG J MED ONCOL 2019;13(6): 255-257)

INTRODUCTION

This article reports the case of a 64-year old male patient with a sigmoid adenocarcinoma that developed a pathological vertebral fracture, treated with percutaneous balloon vertebroplasty (PVP). Later on, he developed seeding metastases: a rare complication of PVP. This case-report will address the procedure and possible complications of PVP and stresses the lack of data about possible preventive measures and treatment options.

CASE REPORT

A 64-year old male patient was diagnosed with a sub stenotic adenocarcinoma of the sigmoid in 2014 and underwent a laparoscopic sigmoid resection at time of diagnosis. He was staged pT3N1M0, although there was some doubt about possible metastases to the lungs on CT scan. Nevertheless, he was treated with adjuvant chemotherapy with modified FOLFOX for 6 months (October 2014 till March 2015). In September 2015, a metastasectomy of the lung lesions was done and confirmed the diagnosis of metastases. Unfortunately, three months later, CT scan showed new lung lesions

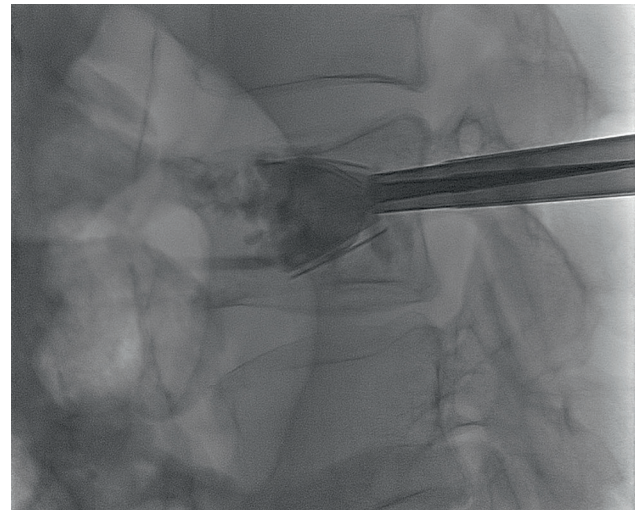


FIGURE 1. Percutaneous balloon vertebroplasty with SpineJack device of pathological vertebral fracture.

and he was started on modified FOLFIRI and bevacizumab. Because of a pathological fracture of his L3 vertebra in December 2017, he was referred to the interventional radiology

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FIGURE 2. Two skin nodules, suspicious for seeding metastases after PVP.

gy department for percutaneous balloon vertebroplasty with SpineJack devices (5.0) (Figure 1). Two months after the procedure, the patient complained of increasing pains in the L2/L3 dermatome regions. Clinically we observed 2 firm skin nodules (Figure 2), laterally of the spine at level L3, suspicious for seeding metastasis after the percutaneous vertebroplasty. He was referred to the radiotherapy department for antalgic radiotherapy of the seeding metastases. Unfortunately, in the meantime he had developed more respiratory complaints and his general condition had deteriorated. CT scan of thorax and abdomen showed a mixed response. As he had become very frail, the decision was made not to start oral chemotherapy (regorafenib or TAS 102). He deteriorated rapidly and died before receiving radiotherapy.

DISCUSSION

There is not much literature about seeding metastases after PVP of spinal metastasis. There are only a few cases reported. Percutaneous vertebroplasty (PVP) is known to be an effective treatment for pathological vertebral compression fractures in oncological patients. The indication for PVP as treatment for spinal metastases is analgesia and spinal stabilisation. Analgesic effect can be achieved within the first 48 hours after the procedure and can last for at least 6 months.¹ This effect is secondary to prevention of micro movements in the fractured vertebrae.² Overall, it is a safe procedure although complications such as cement leakage into the spinal canal, pulmonary embolism, bleeding, spondylitis and fractures are known.^{3,4} Major complications, such as unplanned surgery or permanent sequelae, occur in less than 1% of cases. Interestingly, there is evidence that complications are more common after treating pathological spinal fractures than after non-oncological fractures, respectively in <5% and 1% of the patients.⁵ Overall, the incidence of needle tract seeding after biopsy is probably underestimated, as patients might die before the metastases become apparent and outcomes might not be reported.^{1,6} In order to prevent needle-tract seeding (NTS) after PVP, some have made the suggestion to use a non-aspiration technique, as aspiration is also linked with tumour cell dissemination. Also low-pressure injection of polymethyl methacrylate (PMMA) is recommended to prevent leakage of cancer cells after removing the needle.⁶ At present there is no standard of care how to prevent or treat this complication. Research on preventive measures with radiofrequency ablation, freezing techniques and chemical agents is ongoing but none of them are routinely used.⁷⁻⁹

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KEY MESSAGES FOR CLINICAL PRACTICE

1. Seeding metastases is a rare complication after percutaneous vertebroplasty of a pathological vertebral fracture.
2. There is little data about preventive measures and possible treatments. Further investigation is necessary.

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