

Musculoskeletal Interventional Oncology

~ Year in Review ~

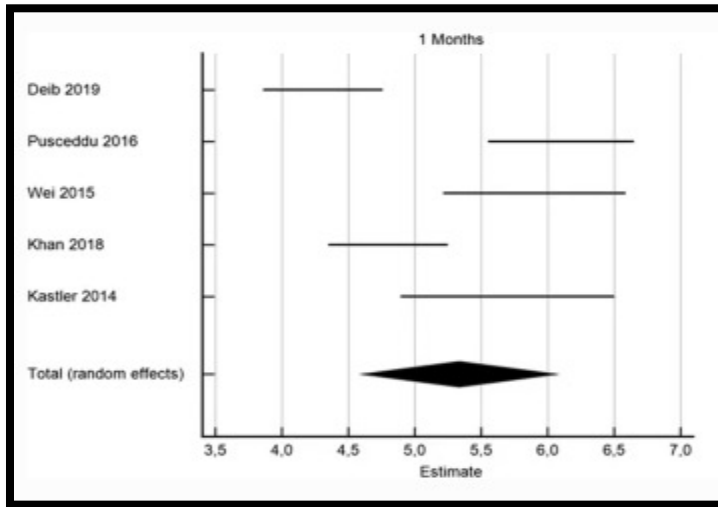
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Disclosures

Medtronic - Consultant
Varian - Consultant

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Microwave Ablation for Bone Tumors

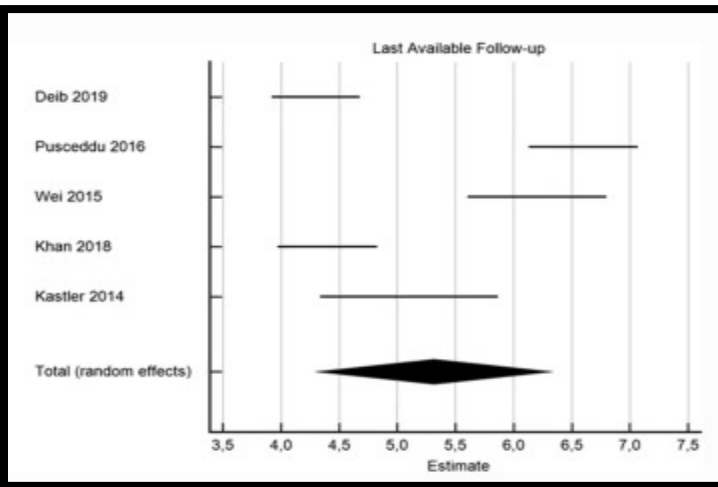


Review > [Eur Radiol. 2021 May;31\(5\):3530-3541. doi: 10.1007/s00330-020-07382-8.](https://doi.org/10.1007/s00330-020-07382-8)
Epub 2020 Nov 6.

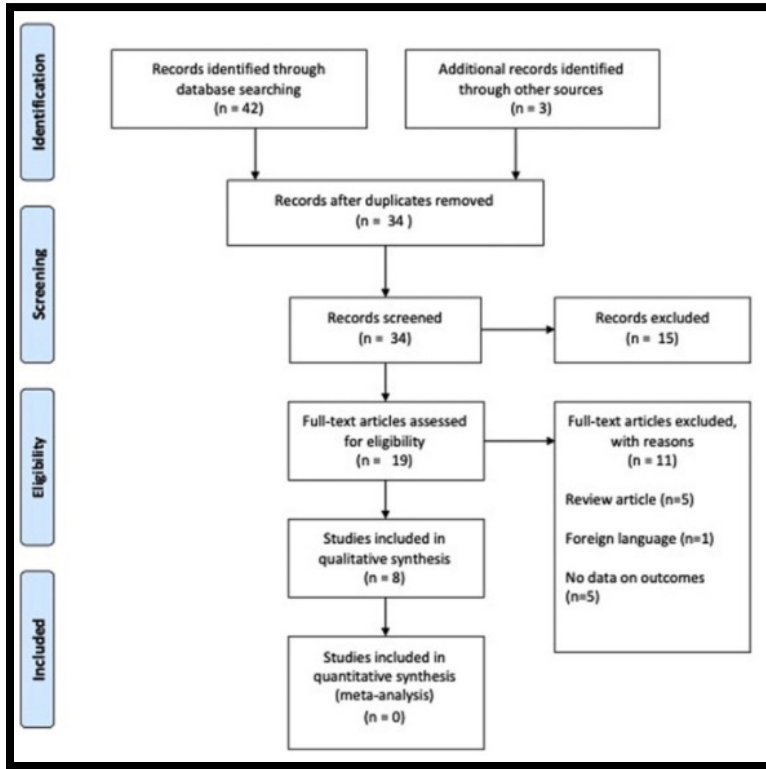
Percutaneous microwave ablation of bone tumors: a systematic review

Roberto Luigi Cazzato¹, Gianluca de Rubeis², Pierre de Marini³, Danoob Dalili^{4 5},
Guillaume Koch³, Pierre Auloge³, Julien Garnon³, Afshin Gangi³

- 7 studies, 249 patients, 306 tumors
- MWA power 30-70W
- Mean ablation time 308 seconds (5 minutes)
- Pain reduction 5/10 at 1 month



Microwave Ablation for Spine Tumors



> [World Neurosurg.](#) 2021 Apr;148:15-23. doi: 10.1016/j.wneu.2020.12.162. Epub 2021 Jan 8.

Microwave Ablation as a Treatment for Spinal Metastatic Tumors: A Systematic Review

Navraj S Sagoo ¹, Ali S Haider ², Scott E Rowe ³, Maryam Haider ⁴, Ruhi Sharma ⁵,
Om James Neeley ⁶, Nader S Dahdaleh ⁷, Owoicho Adogwa ⁶, Carlos A Bagley ⁶,
Tarek Y El Ahmadi ⁸, Salah G Aoun ⁶

- 8 studies, 156 patients, 196 tumors
- Local tumor control in >80%
- Complications in 6.5%

Complications RFA of Spine Metastases

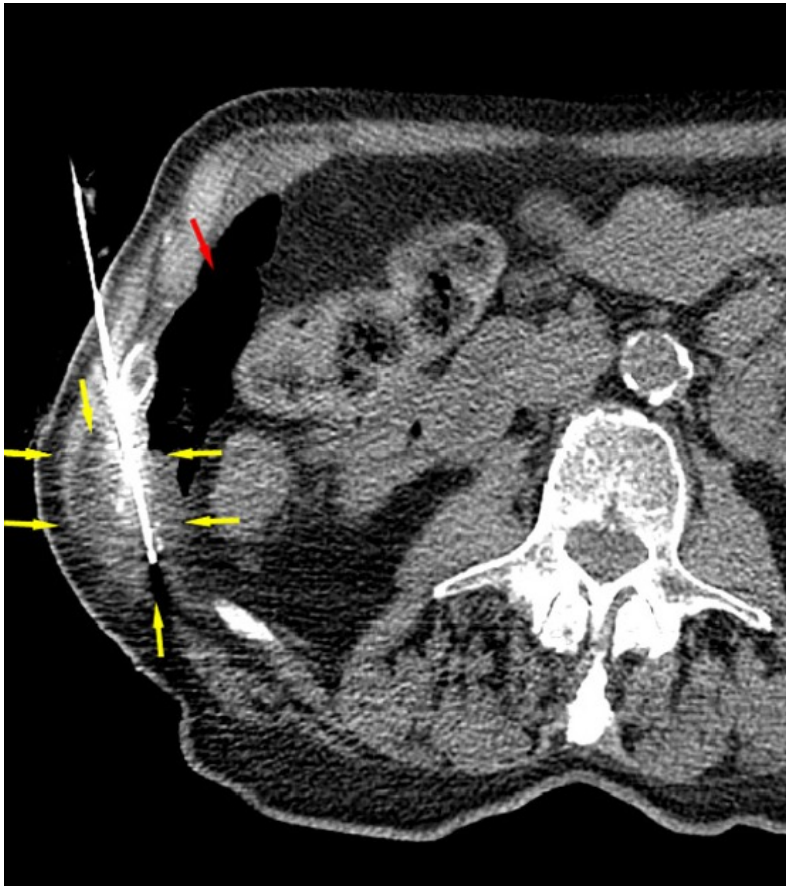
> [AJR Am J Roentgenol. 2021 Jun;216\(6\):1607-1613. doi: 10.2214/AJR.20.23494. Epub 2021 Mar 31.](#)

Complications of Percutaneous Radiofrequency Ablation of Spinal Osseous Metastases: An 8-Year Single-Center Experience

[Anderanik Tomasian](#)¹, [Joshua Marlow](#)², [Travis J Hillen](#)², [Jack W Jennings](#)²

- 266 tumors, 166 patients
- Complication rate 3%
 - Major 0.4%, Minor 2.6%
- Local tumor control rate 79%

Cryoablation for Pain Palliation



Multicenter Study > Radiol Imaging Cancer. 2021 Feb 12;3(2):e200101.

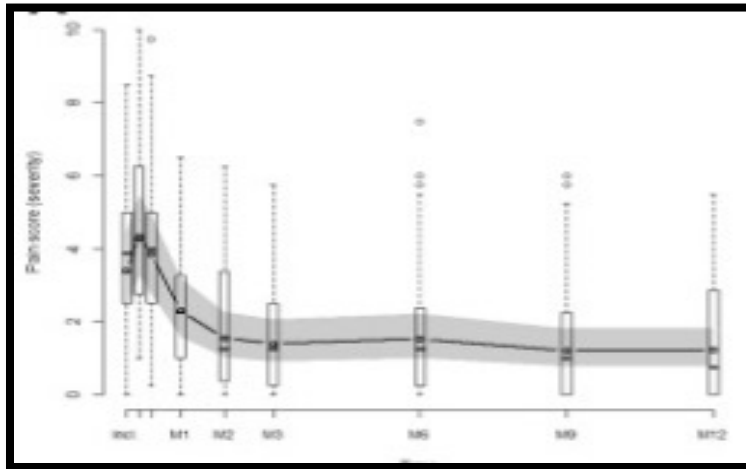
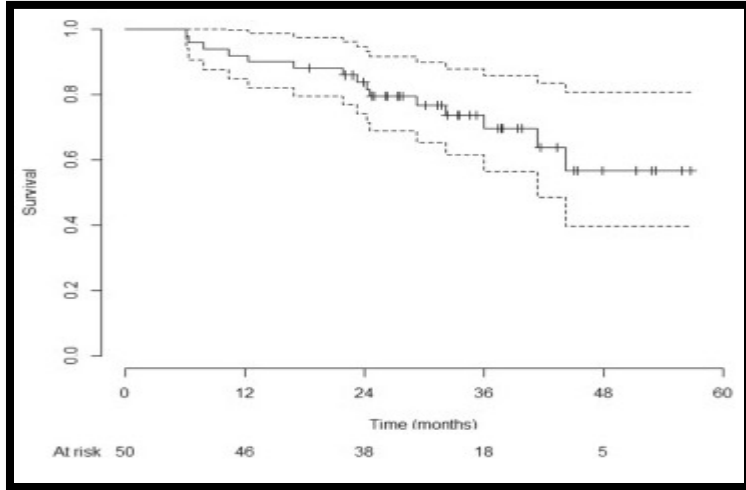
doi: 10.1148/rycan.2021200101. eCollection 2021 Mar.

Cryoablation for Palliation of Painful Bone Metastases: The MOTION Multicenter Study

Jack W Jennings¹, J David Prologo¹, Julien Garnon¹, Afshin Gangi¹, Xavier Buy¹, Jean Palussière¹, A Nicholas Kurup¹, Matthew Callstrom¹, Scott Genshaft¹, Fereidoun Abtin¹, Ambrose J Huang¹, Jason Iannuccilli¹, Frank Pilleul¹, Charles Mastier¹, Peter J Littrup¹, Thierry de Baère¹, Frédéric Deschamps¹

- Prospective, Multicenter Study of Cryoablation for Painful Bone Metastases
- 65 patients with 24 week follow up
- Mean pain score improved 2/10 points

Cryoablation for Desmoid Tumor



Clinical Trial > [Eur J Cancer. 2021 Jan;143:78-87. doi: 10.1016/j.ejca.2020.10.035.](https://doi.org/10.1016/j.ejca.2020.10.035)

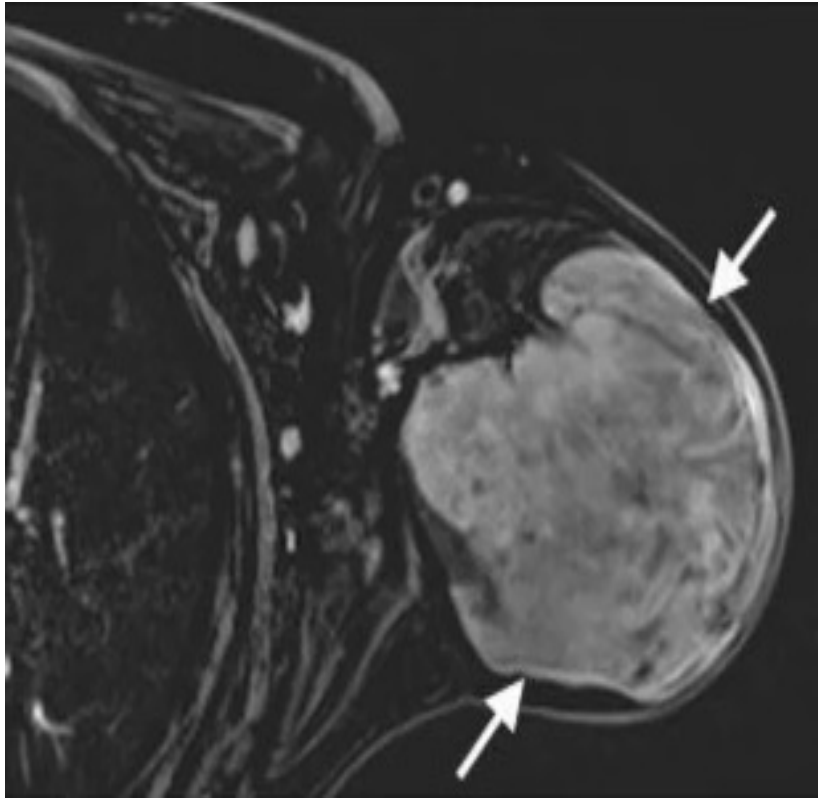
Epub 2020 Dec 5.

CRYODESMO-O1: A prospective, open phase II study of cryoablation in desmoid tumour patients progressing after medical treatment

Jean-Emmanuel Kurtz ¹, Xavier Buy ², Frédéric Deschamps ³, Erik Sauleau ⁴, Amine Bouhamama ⁵, Maud Toulmonde ⁶, Charles Honoré ⁷, François Bertucci ⁸, Mehdi Brahmi ⁹, Christine Chevreau ¹⁰, Florence Duffaud ¹¹, Justine Gantzer ¹², Julien Garnon ¹³, Jean-Yves Blay ⁹, Afshin Gangi ¹³

- 50 patients, median diameter 8.9 cm
- 86% Non-progressing disease at 12 months
- Significant improvement pain & function

Cryoablation for Desmoid Tumor



Int J Clin Oncol. 2021 Jun;26(6):1147-1158. doi: 10.1007/s10147-021-01887-y. Epub 2021 Mar 11.

Percutaneous cryoablation for advanced and refractory extra-abdominal desmoid tumors

Pierre Auloge¹, Julien Garnon², Joey Marie Robinson², Marie-Aude Thenint³, Guillaume Koch², Jean Caudrelier², Julia Weiss², Roberto Luigi Cazzato², Jean Emmanuel Kurtz⁴, Afshin Gangi²

- 30 patients, mean volume 124 cm³
- Median follow up 18.5 months
- PFS 85% at 1 year, 77% at 3 years
- Pain reduction in 96%

Cryoablation Lymph nodes



➤ [AJR Am J Roentgenol. 2021 Jul;217\(1\):152-156. doi: 10.2214/AJR.20.22861. Epub 2021 Apr 14.](#)

A Single-Institution Experience in Percutaneous Image-Guided Cryoablation of Lymph Node Metastases

Ahmad Parvinian¹, John J Schmitz¹, Brian T Welch¹, Thomas D Atwell¹, Jonathan M Morris¹, David A Woodrum¹, A Nicholas Kurup¹

- 55 patients, 65 lymph nodes
- 1.7 cm mean short axis diameter
- Local tumor control 82%, median 25 months

Cryoneurolysis for Splanchnic nerves



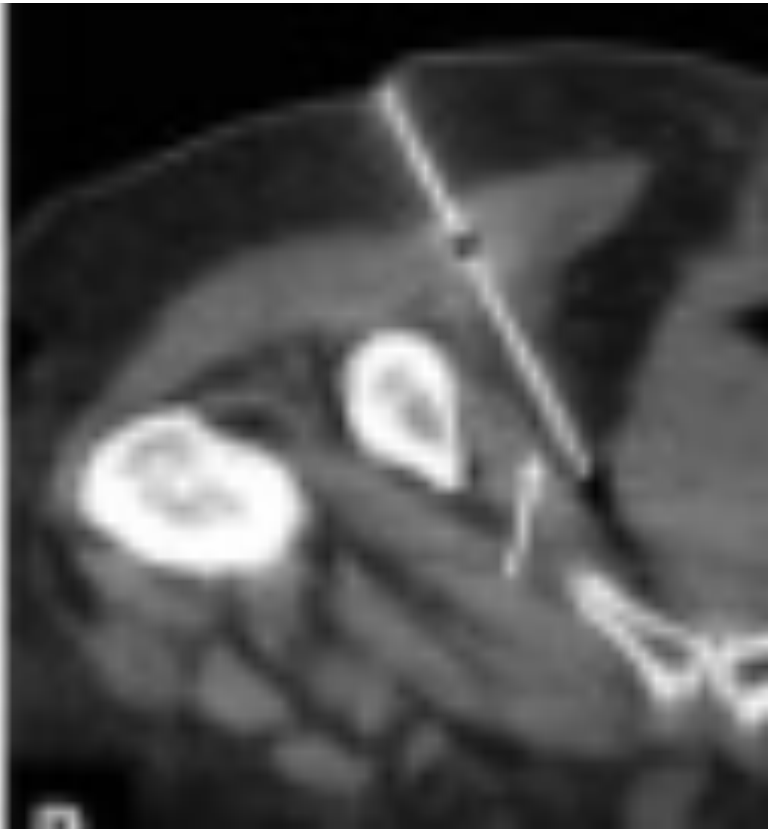
> [Cardiovasc Intervent Radiol.](#) 2021 May;44(5):789-794. doi: 10.1007/s00270-020-02756-3. Epub 2021 Jan 6.

A Technical Report on the Performance of Percutaneous Cryoneurolysis of Splanchnic Nerves for the Treatment of Refractory Abdominal Pain in Patients with Pancreatic Cancer: Initial Experience

D Filippiadis ¹, N Ptohis ², E Efthymiou ³, A Kelekis ³

- 5 patients
- Mean VAS reduction from 9/10 -> 3/10
- 6 month follow up

Cryoanalgesia Review



Review > [Diagn Interv Imaging](#). 2021 May;102(5):273-278. doi: 10.1016/j.diii.2020.11.007.

Epub 2020 Dec 3.

Percutaneous cryoanalgesia for pain palliation: Current status and future trends

Dimitrios Filippiadis ¹, E Efthymiou ², A Tsochatzis ², A Kelekis ², J D Prologo ³

- Review of technique and outcomes

Screw Fixation – Periacetabular Tumors



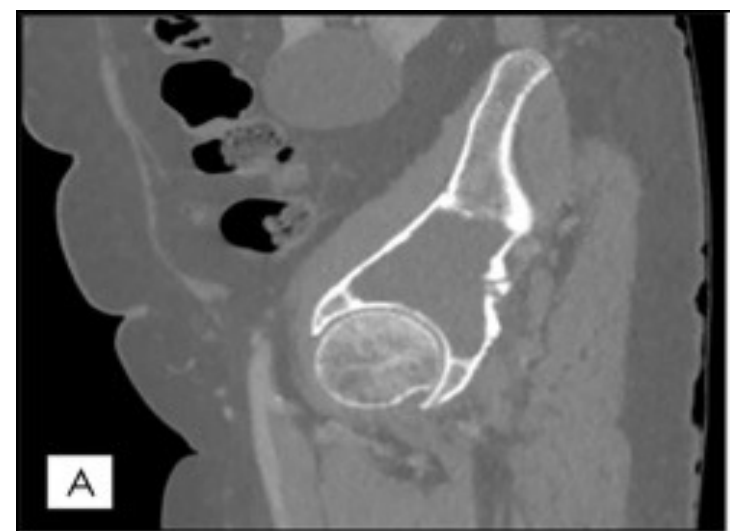
› [J Bone Joint Surg Am. 2021 Jul 7;103\(13\):1184-1192. doi: 10.2106/JBJS.20.00546.](#)

Minimally Invasive Stabilization with or without Ablation for Metastatic Periacetabular Tumors

D Ian English ¹, William B Lea ², David M King ², Sean M Tutton ², John C Neilson ²

- 38 patients
- >80% decrease in narcotic use
- Mean follow up 9 months

Prophylactic Fixation for Impending Fracture



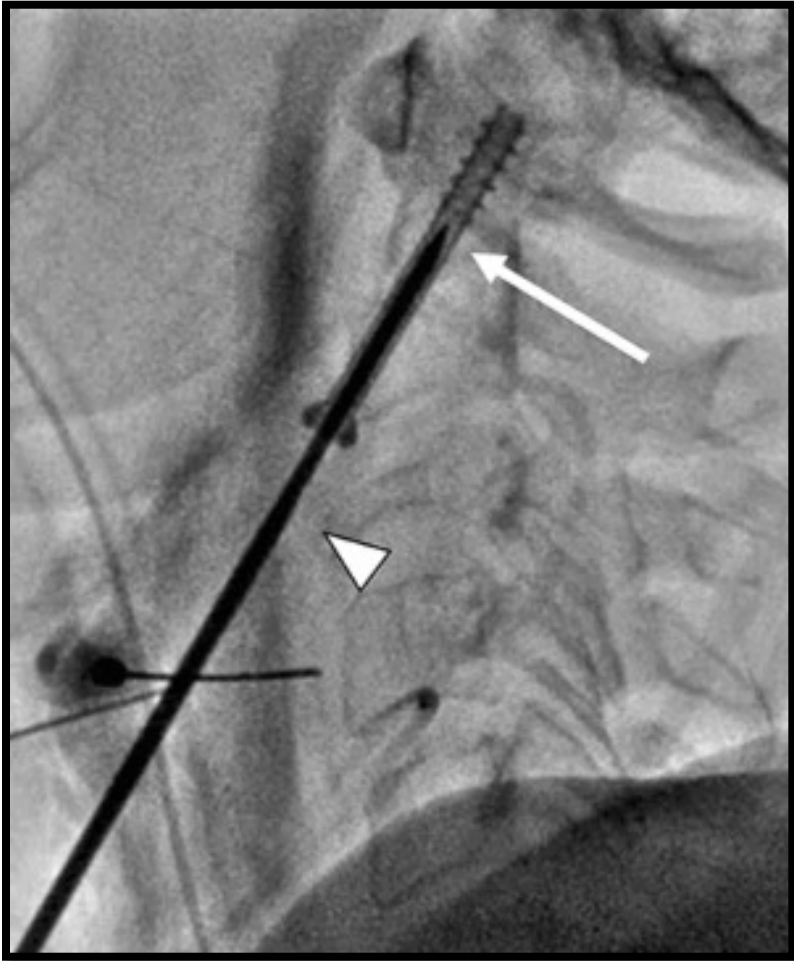
> [Radiol Imaging Cancer. 2021 May;3\(3\):e200137. doi: 10.1148/rycan.2021200137.](#)

Prophylactic Percutaneous Consolidation of Large Osteolytic Tumors of the Pelvic Ring Using Fixation by Internal Cemented Screws

Jessica Assouline ¹, Lambros Tselikas ¹, Charles Roux ¹, Steven Yevich ¹, Alexandre Delpla ¹, Arash Najafi ¹, Marc Al Ahmar ¹, Jean-Charles Bijot ¹, Thierry de Baère ¹, Frédéric Deschamps ¹

- 50 patients
- Local tumor control measures in 38 patients
- Documented pathologic fracture in only 1 patient, 20 months after fixation

Odontoid Screw Fixation



Observational Study > *Cardiovasc Intervent Radiol.* 2021 Apr;44(4):647-653.

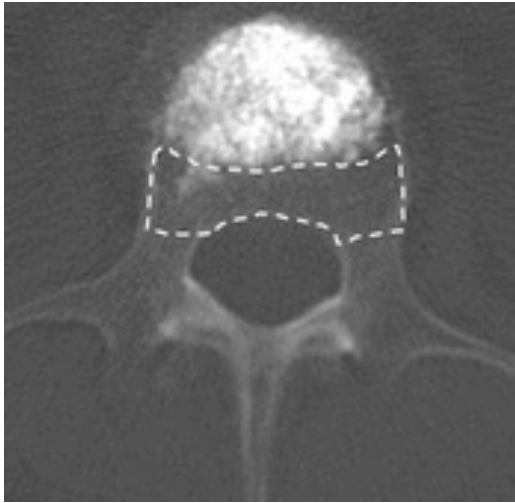
doi: 10.1007/s00270-020-02734-9. Epub 2021 Jan 3.

Percutaneous Image-Guided Anterior Screw Fixation of the Odontoid Process

Pierre-Alexis Autrusseau¹, Damien Heidelberg², Nicolas Stacoffe², Danoob Dalili^{3 4}, Roberto Luigi Cazzato⁵, Guillaume Koch⁵, Afshin Gangi⁵, Julien Garnon⁵

- 5 patients
 - 1 pathologic fracture, 2 impending fractures, 2 traumatic
- Technical success 100%
- VAS decreased mean 5.8/10

Stent-Screw-Assisted Internal Fixation (SAIF)



> [J Neurointerv Surg. 2021 Jan;13\(1\):63-68. doi: 10.1136/neurintsurg-2020-016597. Epub 2020 Sep 16.](#)

The 'armed concrete' approach: stent-screw-assisted internal fixation (SAIF) reconstructs and internally fixates the most severe osteoporotic vertebral fractures

Daniela Distefano ¹, Pietro Scarone ², Maurizio Isalberti ³, Luigi La Barbera ^{4 5 6}, Tomaso Villa ⁵, Giuseppe Bonaldi ⁷, Joshua A Hirsch ⁸, Alessandro Cianfoni ^{3 9}



- **80 severe vertebral compression fractures**
- **Treat both anterior**
- **Interspinous spacers**

Screw Fixation Complications




> [Diagn Interv Imaging](#). 2021 Jun;102(6):347-353. doi: 10.1016/j.diii.2021.01.004. Epub 2021 Jan 27.

Complications of percutaneous image-guided screw fixation: An analysis of 94 consecutive patients

Pierre-A Autrusseau¹, Julien Garnon², Grégory Bertucci², Danoob Dalili³, Pierre De Marini², Pierre Auloge², Guillaume Koch², Jean Caudrelier², Julia Weiss², Roberto L Cazzato², Afshin Gangi²

- 110 fractures in 79 pt with long follow up
- 3 minor Peri-procedure complications
- 4 early complications
- 14 Delayed complications
 - Infection most frequent (3/79)

Thank You



THE UNIVERSITY OF TEXAS
**MD Anderson
Cancer Center**