“Dinosaur spine” in ankylosing spondylitis: case illustration

Michael Fiechter, MD, PhD,¹ Jens Fichtner, MD,¹ Sergej Feiler, MD,¹ Radu Olariu, MD,² Jürgen Beck, MD,¹ Andreas Raabe, MD,¹ and Christian T. Ulrich, MD¹

Departments of ¹Neurosurgery and ²Plastic and Hand Surgery, Bern University Hospital, Inselspital, Bern, Switzerland

<http://thejns.org/doi/abs/10.3171/2015.6.SPINE15152>

KEY WORDS ankylosing spondylitis; cervical spine; fusion

AN 89-year old man with known ankylosing spondylitis (AS) had undergone ventral corpectomy, implantation of a PEEK (polyetheretherketone) cage, and ventral fusion after suffering a dislocated compression fracture of C-7 (Fig. 1A); stabilization was subsequently achieved by dorsal C5–6 and T1–2 fusion (Fig. 1B). The patient had no neurological deficits. Eighteen months later the man presented with massive atrophy of paraspinal muscles and protrusion of spinous processes (Fig. 1C and D). Open resection of the C-7, T-1, and T-2 spinous processes was performed. The overlying skin and atrophic scar tissue were removed (Fig. 1E and F). Adaptation to the bone of paraspinal muscles was not possible due to atrophy. Six weeks after surgery, efficient wound healing was observed (Fig. 1G). Satisfactory cosmesis was achieved, and no infection developed. Neither complications of wound healing nor related to the fracture occurred within the 6-month follow-up period. The patient died 8 months after surgery, with no causal relation between the procedure and death.

Atrophic changes leading to paraspinal muscle fibrosis in AS¹ appeared to arise from disuse of or neurogenic damage to the posterior branches of the spinal nerves due to bony facet joint encroachment in the neural foramina. This patient with an AS-induced rigid spine had extreme atrophy of the paraspinal muscles that led

to direct mechanical exposure of spinous processes.

We describe a safe and simple surgical approach—so far lacking in the literature—that prevents potential complications due to wound perforation or skin infection. As ours was a single case, recommendations to prevent this condition are limited.

Reference

1. Cooper RG, Freemont AJ, Fitzmaurice R, Alani SM, Jayson MI: Paraspinal muscle fibrosis: a specific pathological component in ankylosing spondylitis. *Ann Rheum Dis* 50:755–759, 1991

Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

Author Contributions

Conception and design: Ulrich, Fiechter. Acquisition of data: Ulrich, Fiechter, Fichtner, Feiler. Analysis and interpretation of data: all authors. Drafting the article: Ulrich, Fiechter. Critically revising the article: Ulrich, Fiechter, Olariu, Beck, Raabe. Reviewed submitted version of manuscript: all authors. Approved the final version of the manuscript on behalf of all authors: Ulrich. Administrative/technical/material support: Ulrich, Fiechter, Olariu, Beck, Raabe. Study supervision: Ulrich, Beck, Raabe.

SUBMITTED February 3, 2015. **ACCEPTED** June 16, 2015.

INCLUDE WHEN CITING Published online October 30, 2015; DOI: 10.3171/2015.6.SPINE15152.

CORRESPONDENCE Christian Ulrich, Department of Neurosurgery, Bern University Hospital, Inselspital, Freiburgstrasse 10, Bern 3010, Switzerland. email: christian.ulrich@insel.ch.

FIG. 1. Excessive skin thinning with massive protrusion of spinous processes after dorsal fusion in a patient with a traumatic AS-affected spine. An initial compression fracture of C-7 (**A**) was treated with 360° fusion (**B**). Subsequent skin thinning and protrusion of spinous processes (**C and D**) occurred 18 month later. The spinous processes were surgically removed (**E and F**), and a postoperative clinical follow-up photograph (**G**) demonstrates efficient wound healing 6 weeks after surgery.