Author's response to reviews

Title: Lumbosacral fixation using intrasacral buttress screws: A modification to the Jackson technique using intrasacral rods

Authors:

Kentaro Fukuda (fukuken@qa3.so-net.ne.jp)
Masakazu Takemitsu (takemitsu-m@murayama-hosp.jp)
Masafumi Machida (machida@murayama.hosp.go.jp)
Takashi Asazuma (asazumat@murayama.hosp.go.jp)

Version: 4  Date: 30 June 2014

Author's response to reviews:

Reviewer 1

Major Compulsory Revisions

1) Page 5/Method/line 5: Since this is a paper on technique, the authors should elaborate more on this critical point. Since the surgeon cannot see "the distal end of the joint", what was used as the aiming point? Was some form of template or fluoroscopy used?

Response: We have added the following sentences to the Methods section (page 5, line 7): “The aiming point of the distal end is located under the posterior inferior spine of the ilium. Fluoroscopy can be used to determine the distal end.”

2) Please add a paragraph in the Discussion section on your indications for this technique. When will you recommend this procedure in addition to the standard S1 pedicle screws?

Response: We have added the following sentence to the Discussion section regarding the indication for this technique (page 10, line 6): “This intrasacral screw technique is specified for patients with kyphoscoliosis at the lumbosacral level.”

Minor Compulsory Revisions

1) Title: Consider changing "intrasacral buttress screws" to "lateral sacral mass screws”. Jackson's ideas included iliac buttressing of the lateral sacral mass, which is not the same as "intrasacral buttress screws".

Response: We appreciate your critical comment regarding the title. We agree that the phrase “intrasacral buttress screws” may be confusing to the readers. Jackson and McManus have described the phrase “The Iliac Buttress” in the title and the sentence “The ilia along with the sacroiliac interossieus ligaments cover the back of the posterolateral sacrum in most patients, which could provide a so-called indirect sacroiliac buttress for the ends of rods” in the text. The ilia, posterolateral sacrum, and sacroiliac ligaments could also provide a buttress for
the intrasacral screws inserted in our technique. The buttress effect is important for the stability of presented intrasacral screws in this paper. Besides, Reviewer 2 recommended that we change the title to “Lumbosacral fixation using intrasacral buttress screws: A modification to the Jackson technique with intrasacral rods.” Thus, we have revised the title to “Lumbosacral fixation using sacroiliac buttress screws: A modification to the Jackson technique with intrasacral rods.”

2) Abstract/Background/line 3 and on page 4 and page 9 in the main body text: "difficulty in adjusting the rod to contour the lateral sacral mass". Do the authors mean "difficulty in contouring the rod to fit the lateral sacral mass"?

Response: Yes, we do. The sentence was corrected as “difficulty in contouring the rod to fit the lateral sacral mass.”

3) Abstract/Methods/line 4 and Abstract/Conclusions/line 1: There is iliac buttressing of the dorsal sacral cortex, but how is the ventral sacral cortex buttressed?

Response: We have revised the sentence to “The dorsal side of the screw was stabilized by the sacral subchondral bone at the sacroiliac joint with iliac buttress coverage, and the tip of the screw was anchored by the sacral cortex.”

4) Abstract/Results/line 1: "deferent" should be "different".

Response: The revision from “deferent” to “different” has been made as recommended.

5) Method/line 3: Suggest changing "The lateral side is exposed at approximately 1 cm outside of the first dorsal sacral foramen" to "The exposure is extended laterally to approximately 1 cm lateral to the first dorsal sacral foramen.” Also please describe the neurovascular structures that exit the first dorsal sacral foramen and what was done to them. Preserved? Cauterized?

Response: Thank you for your suggestion. We have changed the sentence “The lateral side is exposed at approximately 1 cm outside of the first dorsal sacral foramen” to “The exposure is extended laterally to approximately 1 cm lateral to the first dorsal sacral foramen,” and have added the sentence “Neurovascular structures exiting the foramen are cauterized due to exposure.”

6) Page 5/Method/line 7: "cancerous" bone should be "cancellous".

Response: The term “Cancerous” has been changed to “cancellous” as recommended.

7) Page 6/Instrumentation/line 1: State exact brand and model of the pedicle screws used.

Response: We have added the phrase “; the ZODIAC® Spinal Fixation System (Alphatec Spine, Inc., Carlsbad, CA, USA) and the EXPEDIUM™ Dual Innie System (DePuy Synthes Spine, Inc., Raynham, MA, USA) or the CD HORIZON® SOLERA™ Spinal system (Medtronic, Inc. TN, USA ).”
Reviewer 2

Major Compulsory Revision

Reviewer comment: Title needs to be changed. "A modification to the Jackson technique with intrasacral rods" would avoid confusion.

Response: In addition to your suggestion, Reviewer 1 recommended that we have change the phrase “intrasacral buttress screws” to “lateral sacral mass screws.” Thus, we have changed the title to “Lumbosacral fixation using sacroiliac buttress screws: A modification to the Jackson technique with intrasacral rods.”

Minor Essential Revisions

Reviewer comment in Page 4(1): If a figure showing Jackson technique can be added, readers will be able to understand this article better.

Response: We are unable to add a case operated by the original Jackson technique, because the technique was difficult for us to perform. This is the main reason why we have modified the technique.

Reviewer comment in Page 4(2): “Lateral sacral mass” is different anatomic region from “sacral ala”. If authors can define the boundary of “lateral sacral mass”, it would be more clear.

Response: I am unable to define the boundary of “lateral sacral mass” and “sacral ala.” The definition of “ala of sacrum” is the upper surface of the lateral part of the sacrum adjacent to the body in the Stedman's Medical Dictionary. Although this definition is considered to be relatively narrow, it is globally accepted. The boundary of “lateral sacral mass (pars lateralis)” and “sacral ala” seems unclearly defined even in Grant’s ATLAS of anatomy. The part of lateral sacrum from all neural foramina can be referred to “ala” in a broad sense, because “S2 alar” has also been used in other reports. We used “lateral sacral mass” in this report according to the original description that “The ends of the rods have been inserted into the lateral masses” by Jackson and McManus.

Reviewer comment in Page 5/ line 1: "by way of using" would be better if the title is not corrected. Otherwise, readers will be confused.

Response: Corrected.

Reviewer comment in Page 5/ line 8: Is C-arm used in this procedure?

Response: We have included the following sentences to the Methods section (page 5, line 7): “The aiming point of the distal end is located under the posterior inferior spine of the ilium. Fluoroscopy can be used to determine the distal end.”

Reviewer comment in Page 6: This can be difficult especially in US. Is spica brace is really needed for 3 months?

Response: The sentence “After surgery, the patients are instructed to use a spica
brace during the day for 3 months.” has been changed to “The patients were instructed to restrict the range of hip motion for a few months, postoperatively.”

Reviewer comment in Page 9/ line 2 of Discussion: Advocated by Jackson.

Response: The sentence “The connection of an intrasacral rod to the pedicle screws is one of the techniques for lumbosacral fixation [7].” has been changed to “The connection of an intrasacral rod to the pedicle screws is one of the techniques for lumbosacral fixation reported by Jackson and McManus [7].”

Spelling error: cancellous

Response: The term “Cancerous” has been revised to “cancellous” on page 5, line 8.