Author's response to reviews

Title: Treatment of pelvic fractures through a less invasive ilioinguinal approach combined with a minimally invasive posterior approach

Authors:

Lei Zhu (hailangzhulei@126.com)
Lu Wang (wanglu08@gmail.com)
Aimin Chen (aiminchen@aliyun.com)

Version: 3
Date: 19 March 2015

Author's response to reviews: see over
Dear Ms Ma. Luz De Guzman,

Thank you for your letter and for the reviewers’ comments concerning our manuscript entitled “Treatment of unstable pelvic fractures through a less invasive ilioinguinal approach combined with minimally invasive posterior approach”. Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made some changes which we hope meet with approval. Revised portions are underlined in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as following:

Reviewer Georg Osterhoff

1. General comments

Although the anterior part of the two described less invasive techniques has been described and used by many others during the last years, the description of the posterior fixation is interesting and would be worth publishing. Unfortunately, the written English in this manuscript makes understanding the intended meaning sometimes very difficult and needs major revision. I have not addressed all language errors and would suggest consultation of a professional English editing service before re-submission of the manuscript. In its current form this manuscript is not suited for publication in BMC Musculoskeletal Disorders.

Response: Thank you for the comments on the paper. I have revised the manuscript as suggested and consulted a professional English editing service. We hope that the correction will meet with approval.
2. Specific comments

2.1. Title

You have treated 17 pelvic fractures type Tile B2. These are, by definition, only partially “unstable” pelvic fractures. I would consider omitting “unstable” in the title.

Response: Thank you. I have omitted “unstable” in the title.

2.2. Abstract

2.2.1 p 2, l 24: Would add “Unstable pelvic fractures usually...”

Response: I have added “Unstable pelvic fractures usually...”.

2.2.2 p 2, l 26: What is “this” less invasive technique? Would suggest “a new less invasive technique”

Response: I have followed the suggestion and used "a new less invasive technique" in the manuscript.

2.2.3 p2, l 29: “Thirty-seven” instead of “37” at the beginning of a sentence. “unstable” instead of “unstale”

Response: I have followed the suggestion in the manuscript.

2.2.4 p2, l 30: if it’s less invasive, it is not the ilioinguinal approach. or did you just use the 1st and 3rd window of the ilioinguinal approach as has been described
by many others?

Response: The lateral window in our study is the 1st window of the ilioinguinal approach. However, the medial window described in the manuscript is different from the 3rd window of the ilioinguinal approach that has been described in other literature. The incision was along the line from the pubic tubercle to the pubic ramus and was below the inguinal ligament. The inguinal ligament was not incised in our approach. No abdominal muscle was involved in the process of exposure. However, the incision of the 3rd window of the ilioinguinal approach passed through the skin and subcutaneous fat to reach the external oblique aponeurosis. The pubic rami were exposed by cutting and removing the ligaments on the surface of the pubis along the vertical axis. The pyramidal muscle may have also been partially excised.

2.2.5 p2, l33: What is the “Matta standard”?

Response: I am sorry for the mistake here. The reduction quality was evaluated directly but not the Matta standard. I have deleted "the Matta standard" here.

2.2.6 p2, l34: Would suggest “...were followed up for ...(mean, 24 months)”. 0.23 months are nor of relevance.

Response: I have followed the suggestion in the manuscript.

2.2.7 p2, l43: “...in the management...”
Response: I have followed the suggestion in the manuscript.

3. Background

3.1 p 3, l 48: Would add “Unstable pelvic fractures usually...”

Response: I have followed the suggestion in the manuscript.

3.2 p 3, l 51: Would suggest “...successful management of unstable pelvic fractures is a challenge for all involved disciplines including the orthopaedic surgeon”.

Response: I have followed the suggestion in the manuscript.

3.3 p 3, l 52: “treatment” twice. rewrite

Response: I have followed the suggestion and used "management" in the manuscript.

3.4 p 3, l 62: The Kocher-Langenbeck approach has never been an alternative in the treatment of anterior pelvic ring injuries.

Response: I have followed the suggestion and deleted the description of Kocher-Langenbeck approach in the manuscript.

3.5 p 3, l 65: the lateral femoral cutaneous nerve is a sensory nerve, therefore I would not use “palsy” in this context.
Response: I have followed the suggestion and rewritten this paragraph in the manuscript.

3.6 p 3, l 66: asymmetric abdominal wall expansion?

Response: I have deleted "asymmetric abdominal wall expansion" here.

3.7 p 4, l 68: Would suggest “... the risk for vascular damage would be desirable”

Response: I have followed the suggestion and rewritten this paragraph in the manuscript.

3.8 p 4, l 70: “we” instead “of We”

Response: I have followed the suggestion in the manuscript.

3.9 p 4, l 71: What about percutaneous intramedullary anterior column / superior pupic ramus screws as described by Adam Starr and many others?

Response: I have followed the suggestion and mentioned his method in the manuscript.

3.10 p 4, l 78: the rate of infection associated with iliosacral screw fixation is negligible when compared to the open techniques. The cited paper by Routt et al reports ANTERIOR pelvis infections secondary to a urethral tear

Response: I have deleted "infections" in the manuscript.
4. Materials and Methods

4.1 p 5, l 94: “There were 9 B1-type cases, 17 B2-type cases, 9 C1-type cases, 2 C3-type cases”. In line 87 the authors state that they excluded pubic symphysis injuries, but they have included 9 B1 injuries: Did all these open book injuries show only fractures to the pubic rami? They also excluded bilateral sacral fractures and injuries to the SI joint: What is the anatomy of the included (bilateral) C3 injuries then?

Response: Yes, all the 9 B1-type cases show only fractures to the pubic rami. Patients with disruption of symphysis pubis were excluded from our study. The two type-C3 cases should be type-C2. We are sorry for the mistake. Pelvic fractures with bilateral vertical instable were also excluded from our study.

4.2 p 5, l 98: Please state reference number of the approval.

Response: The reference number is 2007-029.

4.3 p 6, l 131: I do not think that the reconstruction plate’s manufacturer’s name is relevant for this technique

Response: I have deleted the manufacturer’s name in the manuscript.

4.4 p 7, l 143: a patient cannot be sterilised.

Response: I have added ”the area” in the manuscript.
4.5 p 7, l 144: “The drill point was located at the first third of the iliac crest and 1 cm inferior to the posterior superior iliac spines”. I do not understand the meaning of this sentence.

Response: I have rewritten the sentence as "The drill point was located at the first third of the dorsal iliac crest in sagittal section and 1 cm medial to the posterosuperior iliac spines in coronal section."

4.6 p 7, l 148/149: the company’s name is “Medtronic”

Response: I have followed the suggestion in the manuscript.

4.7 p 7, l 151: only these views? what about “teardrop”/”LC2” views along and down the iliac wing?

Response: Yes, the LC2 views is also included to detect the location of screw in iliac wing. I have added it in the manuscript.

“All patients were advised to added their weight on affected pelvic belt step by step.” I do not understand the meaning of this sentence.

Response: I have rewritten this sentence as "Postoperatively, the patients were instructed to stay in bed and participate in lower limb and joint functional exercise for 4 weeks and then walk with partial weight bear for 6 weeks. Finally, they were allowed to walk normally 12 weeks after surgery."
4.9 p 7, l 160: How did the authors assess their outcome measures (function, postop reduction)? How were complications defined? What was the frequency of follow-up appointments? Some aspects of this appear in the results section but should instead be addressed in the methods section.

Response: The function was evaluated using a scoring system described by Majeed. Five criteria were chosen for functional assessment after major pelvic fractures: pain, standing, sitting, sexual intercourse and performance at work. The postoperative reduction was evaluated according to the anteroposterior, inlet and outlet pelvic views. Complications were defined as infections, deep vein thrombosis, nerve and vascular injuries, erosion of soft tissues overlying the screw head, sexual or urinary dysfunctions and nonunions. The follow-up visits were arranged at 6 weeks, 12 weeks, 24 weeks and 1 year and 2 years postoperatively for clinical and radiographic examinations. I have rewritten this section according to your suggestions.

5. Results/Discussion

5.1 I would suggest to re-write the whole section and to split it in two parts: Results and Discussion.

Response: I have followed the suggestion in the manuscript.

I would also suggest structuring the discussion section as follows:

1. Short summary of the results (one paragraph).
Response: I have followed the suggestion in the manuscript.

2. discuss results in view of the current literature (case series on the less-invasive anterior approach are existing in great numbers, this approach is already being taught in some of the standard courses on pelvic surgery. there’s lots of literature on posterior iliac screws for spine surgery).

Response: I have followed the suggestion in the manuscript.

3. strengths and limitations of the study (sample size! validity of reduction measurements in pelvic ring surgery?).

Response: I have followed the suggestion in the manuscript.

4. clinical relevance of your findings (wouldn’t the posterior bridge be especially interesting in patients with bilateral comminuted sacral fractures?).

Response: I have followed the suggestion in the manuscript. But I think the lumbosacral fixation is a better choice for bilateral comminuted sacral fractures.

The method described in this paper is not suitable for bilateral sacral fractures.

5. outlook and future research proposed based on your work.

Response: I have followed the suggestion and added this content in the manuscript.
5.2 p11, l 224: the authors discuss acetabular surgery on base of their data on pelvic ring injuries.

Response: I have followed the suggestion and rewritten this section.

6. Figures

6.1. I suggest covering the patient’s genital.

Response: I have followed the suggestion and covered the patient’s genital.

Special thanks to you for your good comments.
Reviewer: Daniel Balbachevsky

Major Compulsory Revisions

- line 60 and 71:

It's necessary to revise the text that mention that anterior ring and pubic rami fractures are generally treated by the full ilioinguinal approach. Letournel's ilioinguinal approach is rarely necessary for superior rami fractures, they can be done only the 3rd window sometimes associated with 2nd; a Pfannenstiel or a Stoppa approach; or even percutaneous screws.

Response: I have revised this part in the manuscript.

- line 87:

Inclusion criteria is not clear. I'd suggest to consider including specific sacral fractures - cominuted fractures, sacral dimorphism, inadequate intra-operative images (obese patients, bad quality fluoroscopy), because in regular conditions sacral fractures still seems to be more adequately treated by percutaneous screws. Since the study is already done, it looks to be important to specify the best indications for this technique.

Response: I have followed the suggestion and specified the best indications for this technique in the manuscript.

Minor Essential Revisions

- line 139:

It's not clear what is considered a "large separation or displacement" after the anterior plating, to indicate a posterior fixation. The indication of posterior fixation
should be done after the fracture classification. (type C fractures).

Response: I am sorry for the mistakes in the original paper. In fact, all patients' posterior fractures are fixed and I have revised this part in the manuscript.

- line 157:

The postoperative treatment should be more detailed - time of antibiotics, anticoagulants, weight bearing program.

Response: I have revised the "Postoperative treatment and follow-up" part and described in detail in the manuscript.

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper. We appreciate for your warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.