



Editorial Comment on the Article by A.O. Farion et al. “Migration of a Kirschner Wire Into the Urinary Bladder: A Case Report”

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Igor G. Belenkiy^{1,2}

¹ St. Petersburg I.I. Dzhanelidze Research Institute of Emergency Medicine, St. Petersburg, Russia

² St. Petersburg State University, St. Petersburg, Russia

Abstract

The article “Migration of a Kirschner Wire into the Bladder: Case Report” describes a rather rare but serious complication after osteosynthesis of a medial femoral neck fracture performed with wires, that is a fatigue fracture of a Kirschner wire with migration of its proximal fragment into the bladder. It is stated in the commentary that such complications do occur and the results of their successful treatment have been published in the modern scientific literature. The author of the commentary draws attention to the tactical and organizational aspects of treating patients with femoral neck fractures related to this case. It is pointed out that there are standard replicable osteosynthesis techniques for fractures of a number of localizations that provide good clinical results. Proximal femur is one of these localizations, and the methods of surgical treatment of its fractures are described in details in current clinical guidelines. Possible reasons for the long-term persistence of pseudarthrosis of the femoral neck are also analyzed. Conclusions: when choosing a method of surgical treatment, it is necessary to follow the approved clinical guidelines to reduce the risks of nonunion of femoral neck fractures. Hip arthroplasty should be performed without delay in cases of fracture nonunion after osteosynthesis.

Keywords: osteosynthesis, K-wire, migration of wires, failure of osteosynthesis, femoral neck fracture.

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✉ Igor G. Belenkiy; e-mail: belenkiy.trauma@mail.ru

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Редакционный комментарий к статье А.О. Фарйона с соавторами «Миграция спицы Киршнера в мочевой пузырь: клинический случай»

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И.Г. Беленький^{1,2}


¹ ГБУ «Санкт-Петербургский научно-исследовательский институт скорой помощи им. И.И. Джанелидзе»,
г. Санкт-Петербург, Россия


² ФБГОУ ВО «Санкт-Петербургский государственный университет», г. Санкт-Петербург, Россия

Реферат

В комментарии к статье «Миграция спицы Киршнера в мочевой пузырь: клинический случай», описывающей достаточно редкое, но серьезное осложнение после остеосинтеза медиального перелома шейки бедренной кости, выполненного спицами: усталостный перелом спицы Киршнера с миграцией проксимального ее фрагмента в мочевой пузырь, констатируется наличие подобных осложнений с публикацией результатов успешного их лечения в современной научной литературе. Автор комментария обращает внимание на связанные с этим случаем тактические и организационные аспекты оказания помощи пациентам с переломами шейки бедренной кости. Отмечается, что при переломах ряда локализаций существуют стандартные тиражируемые методики остеосинтеза, дающие хорошие клинические результаты. К числу таких локализаций относится и проксимальный отдел бедренной кости, методики оперативного лечения переломов которого подробно изложены в действующих клинических рекомендациях. Анализируются также возможные причины длительного существования ложного сустава шейки бедренной кости. Выводы: для снижения риска несращения переломов шейки бедренной кости при выборе метода оперативного лечения необходимо следовать утвержденным клиническим рекомендациям, а в случаях несращения переломов после остеосинтеза без задержек выполнять эндопротезирование тазобедренного сустава.

Ключевые слова: остеосинтез, спицы Киршнера, миграция спиц, несостоятельность остеосинтеза, перелом шейки бедренной кости.

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 Беленький Игорь Григорьевич; e-mail: belenkiy.trauma@mail.ru

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Certainly, presented case is quite interesting from the clinical point of view. Nevertheless, we would like to draw attention to the tactical and organizational aspects of treating patients with femoral neck fractures.

Osteosynthesis with wires as a method of definitive fixation is currently most commonly used as a part of the tension band with a wire loop for patella fractures [4], olecranon fractures [5] and less frequently for fractures of other localizations as an independent fixator, in particular for fractures of the proximal humerus [6] and the distal radius [7]. Not long ago, different types of wire osteosynthesis were also used for femoral neck fractures. However, there were cases of wire migration. To improve the quality of fixation and prevent wire migration, in 1997, a method of osteosynthesis of the proximal femur was proposed using three bundles of mutually orthogonal wires in the form of pins (Method of surgical treatment of fractures of the proximal femur. Patent of invention RU 2139002 C1, 10.10.1999). However, later, the same authors who proposed this technique did not even mention it when analyzing the results of treatment of patients with femoral neck fractures [8].

When using wires as guides for insertion of cannulated constructs as well as when performing definitive osteosynthesis with wires to prevent their migration, it is common to use threaded wires (Method of surgical treatment of fractures of the pubic ring bones via osteosynthesis with a threaded fixing wire. Patent of invention 2727895 C1, 24.07.2020).

When discussing the tactics of surgical treatment of proximal femur fractures, we should say that in case of intracapsular fractures (type B fractures according to the AO classification), we can choose between osteosynthesis or arthroplasty. When deciding to perform arthroplasty, one can debate the choice between different modifications and methods of fixation of prosthetic components. The situation is completely different when deciding upon performing osteosynthesis of a femoral neck fracture. Considering the choice of osteosynthesis technique, we should note that there are standard replicable techniques for fractures of several localizations that give good clinical results. Proximal femur is one of these localizations. Most of unsolved issues related to osteosynthesis of these fractures today

are organizational ones [9]. Technically, in case of femoral neck fractures, osteosynthesis can be performed with parallel cannulated screws, dynamic hip screw system, or dynamic parallelly inserted screws locked in a plate. These methods are approved in the current clinical guidelines for the treatment of proximal femur fractures. It also states there that the methods of osteosynthesis with a three-blade nail and angled blade plate, which have been widely used not so long ago, are not recommended [10]. The lack of even a mention of osteosynthesis with wires in the clinical guidelines demonstrates that this technique is extremely rare nowadays.

There is another fact in the article that cannot be overlooked. The patient sought hospital care only three years after the osteosynthesis and had the wires removed. Obviously, at that time there were all indications for arthroplasty, which was performed only two years afterwards. We can only theorize about the reasons. Perhaps, there were some organizational problems related to the paperwork associated with performing a high-tech surgical intervention. However, it is most likely that the patient was fine with the decrease in her quality of life and decided to undergo arthroplasty only when her pain syndrome increased. Nevertheless, after reviewing this article, the following conclusions can be made: when choosing a method of surgical treatment, it is necessary to follow the approved clinical guidelines to reduce the risks of nonunion of femoral neck fractures. Hip arthroplasty should be performed without delay in cases of fracture nonunion after osteosynthesis.

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Author's information

✉ Igor G. Belenkiy — Dr. Sci (Med.)

Address: 3, Budapeshtskaya st., St. Petersburg, 192242, Russia

<https://orcid.org/0000-0001-9951-5183>

e-mail: belenkiy.trauma@mail.ru