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## TABLE OF CONTENTS / MUNDARIJA

### EXACT SCIENCES / ANIQ FANLAR

1. Baxodir Qobuljon o'g'li Mamasidikov  
Yuqori tartibli determinantlarni hisoblashning qulay usullari 8

### NATURAL SCIENCES / TABIIY FANLAR

2. Sarvinoz Yusupova, Xusanova Shaxina  
Alkogolizmni oldini olish profilaktikasi 14
3. Sakina Bakhodirovna Tairova, Rano Turakulovna Sattarova,  
Madina Begali qizi Husanova  
Incidence of allergic diseases in children with congenital heart defects 17
4. J.Sh.Qayumov, M.N.Xayrullayev, N.U.Ismoilov, Sh.T.Mamajonov, A.Z.Ergashov,  
A.A.Hayitov, F.M.Mirzahmedov  
COVID etiologyali son suyagi boshchasi avaskulyar nekrozini erta bosqichlarda  
tashxislash va davolash 22
5. N.S.Nurmukhamedova, Z.A.Sharopov, A.A.Xudoynazarov  
Review on hepatobiliary disorders and complications of ulcerative colitis 39
6. Д.Ш.Файзуллаев, Г.А.Абдирашидова, Ш.Ш.Бакиев  
Ўткир ва сурункали йирингли синуситларни даволашда нитроксидергик тизим  
кўрсаткичларининг патогенетик роли 53
7. N.E.Yuldashova, Sh.A.Xusinova, M.X.Ablakulova  
Bolalarda atopik holatlarda vitamin D qo'llanilish amaliyoti 57
8. G'.T.Kurbanov  
Role of macrophages and cytokines in the formation of inflammation and progression  
of chronic obstructive pulmonary disease 66
9. Gulbahor Aslamovna Kurbonova  
Problems of liver cirrhosis 72
10. Умида Нематовна Мавлянова, Дониержон Хаккулович Саидкулов  
Особенности клинического течения коморбидных состояний при туберкулезе  
(литературный обзор) 79
11. Б.И.Джуракулов, Х.Х.Бойкузиев  
Нарушение гомеостаза их причины и профилактика 85
12. Z.S.Pardayeva  
Study of menstrual cycle disorders in women of fertility age of the population of  
Ishtikhan district, Samarkand region 91
13. Фируза Саломовна Саидова, Иброҳим Ҳасан ўғли Қаҳҳоров  
Мактабгача ёшдаги ичак паразитозли болаларда микронутриентлар танқислиги  
ҳолатини алгоритмли аниқлаш ва даволаш 96
14. Ф.И.Юлдашева, Н.З.Фазылова  
Вагинальная микробиота. Вагинальная микробиота во время беременности 101
15. Shoira Akbarovna Xusinova, Leyla Rafikovna Hakimova  
Bolalarda urolitiazni epidemiologiyasini o'rganish (adabiyotlar sharhi) 111
16. F.M.Mirzaakhmedov, N.U.Ismailov, A.Z.Ergashov, Sh.T.Mamajonov,  
A.Sh.Hamrayev, F.B.Salohiddinov, B.E.Tuguzov, N.R.Qobilov, A.A.Xayitov  
Our practis in operative treatment of scaphoid fracture with open reduction and  
internal fixation by K-wires 122
17. F.B.Salokhiddinov, A.A.Khaitov, A.Sh.Khamrayev, B.E.Tuguzov, N.U.Ismailov,  
Sh.T.Mamajonov  
Post-traumatic immunosuppression and the possibility of their correction 126



# Our practis in operative treatment of scaphoid fracture with open reduction and internal fixation by K-wires

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**Abstract:** Purpose of our study: To given high union rate, early mobilization and weight-bearing by K-wires fixation. Materials and methods: In our department from June 2020 to June 2023, 23 patients treated with open reduction and internal fixation by K-wires. Results: After operation in a lot of patients union or callus formation occurred at the time (6-8 weeks). Conclusion: Open reduction and internal fixation by K-wires is one of the best methods of scaphoid fracture because after that union rate is high, malunion and also chances of avascular necrosis is very low.

**Keywords:** fracture, the scaphoid bone, K-wire

## INTRODUCTION

The scaphoid is the most frequently fractured carpal bone, accounting for 65-71% of all carpal bone injuries, 11% of all hand fractures and 5% of all wrist injuries [7]. Scaphoid fractures often occur in young and middle-aged adults, typically those aged 15-60 years. Men aged 20 to 30 years are most often affected. Who also have the highest incidence of non-union, take the longest time to unite. The importance of scaphoid fracture diagnosis is clear when one realizes that 90% of all acute scaphoid fractures heal if treated early. There are no specific risks or diseases that increase the chance of having a scaphoid fracture. "Campbell's Operative Orthopedics" estimates that 40% of scaphoid fractures are undiagnosed at the time of the injury [3]

*Aim of our study:* To given high rate of union, early mobilization and weight-bearing by pin fixation.

## MECHANISM OF SCAPHOID FRACTURE

Hyperextension with axial load during a fall on an outstretched hand is the most common cause of scaphoid waist fracture [11](Fig. 1A). A direct blow to the scaphoid

tubercle often during a fall could cause a distal fracture [2], and this is the most common fracture in children [1,8,10,12](Fig. 1B). Fracture can also occur with an unloaded wrist in maximum extension in combination with a sudden hit. This is typical for a goalkeeper getting struck by a high-velocity ball, and it often results in a proximal pole fracture [4,9](Fig. 1C). Yet, another way to fracture the scaphoid is through a punch mechanism whereby an axial load to the index metacarpal through the trapezium and trapezoid is transferred to the distal scaphoid, causing a shear force type of scaphoid waist fracture [6](Fig 1D). When a high-energy trauma is involved, a scaphoid fracture could result, often in combination with other concomitant carpal fractures and, sometimes, perilunate dislocation [5].



Figure 1: Four most common mechanisms of injury in scaphoid fractures.

## MATERIALS AND METHOD

We used open reduction and internal fixation by K-wires to fix scaphoid fracture. Period of study: 24 months from June 2020 to June 2023. 23 patients with diagnosis of scaphoid fracture treated with open reduction and internal fixation by K-wires in our department in which 19 patients male and only 4 patients were female. Age distribution range from 23 to 47 years. In 23 scaphoid fracture only 8 patients with acute scaphoid fracture and rest 15 with chronic scaphoid fracture.

## RADIOLOGICAL EVALUATION

Scaphoid fractures are most commonly diagnosed by x-rays of the wrist. However, when the fracture is not displaced, x-rays taken within the first week may not reveal the fracture. A non-displaced scaphoid fracture could thus be incorrectly diagnosed as a “sprain” because the x-ray was “negative.” Therefore a patient who has significant tenderness directly over the scaphoid bone (which is located in the hollow at the thumb side of the wrist, or “snuffbox”) should be suspected of having a scaphoid fracture and be splinted. The patient should be re-evaluated about two weeks later and if findings are still suspicious for a scaphoid fracture, x-rays at that time will usually show the fracture due to changes in the bone at the edge of the fracture. In cases where waiting two weeks in a splint may cause undue hardship, or if the x-rays remain negative but the clinical exam is still suspicious, more sophisticated (and expensive) imaging techniques may be utilized, such as CT scan.

## TREATMENT

All patients with scaphoid fracture received third generation antibiotic 2 hours before operation to 5-7 postoperative days. Mean duration between injury and

operation was 1-3 days. Under intravenous anesthesia with the patient on supine position, clean skin of the upper limb three times with antiseptic solution betadine. Elastic tourniquet is will be placed at the level of the lower third of the shoulder. S-shaped incision is made on the dorsum of the wrist up to 4-5 cm. Layer by layer by sharp and blunt revealed the fracture of the scaphoid bone. Scaphoid bone fragments cleaned from blood clots, then will be mapped and fixed by K-wires. The surgical wound is will be washed with antiseptic, elastic tourniquet will be remove. The wound is sutured layer by layer. Aseptic bandage to surgical wound. Fixing by plaster splint for six weeks. Daily dressing done for 14 days after 14 days sutures removed. After six weeks repeat x-ray done if healing is good K-wires will be removed and the healing is not good K-wires are not removed and continue fixation 1-2 weeks more.

### RESULTS

Mean operation time from the skin incision to the closure of the wound was 45-60 minutes. No any patients developed failure of pins (K-wires) fixation. After operation in 4 patients developed nonunion, in 7 patients occurred delay union. And in rest patients union or callus formation an appropriate time was achieved after pin fixation (average time 6-8 weeks). No developed avascular necrosis in any patients. No any patients showed nerve injury due to pin fixation. Scaphoid fracture treated with open reduction and internal fixation by K-wires given about 70% good movement after operation in wrist joint but in some patients due to bad care and physiotherapy occurred painful stiffness of joint.

### CONCLUSION

Open reduction and internal fixation by K-wires is one of the best methods of scaphoid fracture because after that union rate is high, malunion and infection rates are low and also chances of avascular necrosis is very low. Functional outcome is high that means movement of joint and also weight lifting is good after physiotherapy compare to conservative treatment treated by plaster cast because they give high rate of nonunion and malunion formation and also chances of avascular necrosis formation (statically). And functional outcome is also bad. So for scaphoid fracture open reduction and internal fixation by K-wires is good method of choice.

### Reference

1. Christodoulou A.G. and Colton C.L., Scaphoid fractures in children. *J Pediatr Orthop*, 2009. Vol.6(1): page 37-39.
2. Cockshott W.P., Distal avulsion fractures of the scaphoid. *Br J Radiol*, 2008. Vol.53(635): p. 1037-40.
3. Crenshaw A.H. in *Campbells Operative Orthopaedics*, Canale S.T, Editor. 2003, Mosby: St Louis M.O. 3458.

4. Green J.R., GM;, Scaphoid fractures in soccer goalkeepers. *J Okla state Med Assoc*, 2004. Vol. 90(Feb): page 45-47.
5. Herzberg G., Comtet J.J., Linscheid R.L., Amadio P.C., Cooney W.P., Stalder J., Perilunate dislocations and fracture-dislocations: a multicenter study. *J Hand Surg Am*, 2003. Vol. 18(5): page 768-779.
6. Horii E., Nakamura R, Watanabe K., Tsunoda K., Scaphoid fracture as a "puncher's fracture". *J Orthop Trauma*, 2004. Vol. 8(2): page 107-110.
7. Hove L.M. Epidemiology of scaphoid fractures in Bergen, Norway. *Scand J Plast Reconstr Surg Hand Surg*. 2007. Vol.33: page 423-426.
8. Nafie S.A., Fractures of the carpal bones in children. *Injury*, 2007. Vol.18(2): page 117-119.
9. Rongieres M., Mansat M., Le Bail B., Samaran P., Leclair O., Bonneville P., [Fractures of the proximal pole of the scaphoid bone. Anatomico-clinical and therapeutic entity]. *Ann Chir Main Memb Super* 2001. Vol.10(2): page 119-123.
10. Vahvanen V. and Westerlund M., Fracture of the carpal scaphoid in children. A clinical and roentgenological study of 108 cases. *Acta Orthop Scand*, 2010.vol. 51(6): page 909-913.
11. Weber E.R. and E.Y. Chao, An experimental approach to the mechanism of scaphoid waist fractures. *J Hand Surg Am*, 2005. Vol.3(2): page. 142-148.
12. Wilson E.B., Beattie T.F., and Wilkinson A.G., Epidemiological review and proposed management of 'scaphoid' injury in children. *Eur J Emerg Med*, 2011. Vol.18(1): page 57-61. 95
13. Carol A Boles, Scaphoid Fracture Imaging, <https://emedicine.medscape.com/article/397230-overview>
14. Jörgsholm, P. (2015). *Scaphoid Fractures-epidemiology, diagnosis and treatment*. Lund University.
15. Scaphoid Fractures, <https://www.austinhandgroup.com/single-post/2016-1-6-scaphoid-fractures>