New Day in Medicine
Новый День в Медицине
NDM

TIBBIYOTDA YANGI KUN

Ilmiy referativ, marifiy-ma'naviy jurnal

AVICENNA-MED.UZ

ISSN 2181-712X.
EiSSN 2181-2187

3 (89) 2026

ТИББИЁТДА ЯНГИ КУН
НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE

Илмий-рефератив, маънавий-маърифий журнал
Научно-реферативный,
духовно-просветительский журнал

УЧРЕДИТЕЛИ:

БУХАРСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ ИНСТИТУТ
ООО «ТИББИЁТДА ЯНГИ КУН»

Национальный медицинский исследовательский центр хирургии имени А.В. Вишневского является генеральным научно-практическим консультантом редакции

Журнал был включен в список журнальных изданий, рецензируемых Высшей Аттестационной Комиссией Республики Узбекистан (Протокол № 201/03 от 30.12.2013 г.)

3 (89)

2026
март

www.bsmi.uz
https://newdaymedicine.com
E: ndmuz@mail.ru
Тел: +99890 8061882

Received: 20.02.2026, Accepted: 06.03.2026, Published: 10.03.2026

UDK 616.711.23

PATHOGENETIC ANALYSIS OF STATIC DEFORMITIES IN PATIENTS OF THE STUDY GROUP

Teshaev Azamat Azamovich https://orcid.org/0000-0003-2536-3425 e-mail: teshayev.azamat@bsmi.uz

Bukhara State Medical Institute named after Abu Ali ibn Sina, Uzbekistan, Bukhara, st. A. Navoi. 1 Tel: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ ***Resume***

Patients of the research group who cause static deformity of the foot , studying the causes and developing methods to eliminate risk factors is one of the urgent tasks of medicine. It is important to study the clinical manifestations of static deformities in patients, as well as to conduct an objective and subjective analysis of the study.

Keywords: patients of the research group, static deformities of the feet, pathogenetic analysis, manifestation of clinical symptoms.

ПАТОГЕНЕТИЧЕСКИЙ АНАЛИЗ СТАТИЧЕСКИХ ДЕФОРМАЦИЙ У БОЛЬНЫХ ИССЛЕДУЕМОЙ ГРУППЫ

Тешаева Азамат Азамович https://orcid.org/0000-0003-2536-3425 e-mail: teshayev.azamat@bsmi.uz

Бухарский государственный медицинский институт имени Абу Али ибн Сины, Узбекистан, г. Бухара, ул. А. Навои. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ ***Резюме***

Вызывающие статическую деформацию стопы пациенты исследовательской группы изучение причин и разработка методов устранения факторов риска-одна из актуальных задач медицины. Важно изучить клинические проявления статических деформаций у пациентов, а также провести объективный и субъективный анализ исследования.

Ключевые слова: пациенты исследовательской группы, статические деформации стоп, патогенетический анализ, проявление клинических симптомов.

ТАДҚИҚОТ ГУРУҲИ БЕМОРЛАРИДА СТАТИК ДЕФОРМАЦИЯЛАРИНИ ПАТОГИНЕТИК ТАҲЛИЛЛАРИ

Тешаева Азамат Азамович https://orcid.org/0000-0003-2536-3425 e-mail: teshayev.azamat@bsmi.uz

Абу али ибн Сино номидаги Бухоро давлат тиббиёт институти Ўзбекистон, Бухоро ш., А.Навоий кўчаси. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ ***Резюме***

Тадқиқот гуруҳи беморларининг оёқларнинг статик деформациясини келтириб чиқарувчи сабабларини ўрганиш ҳамда хавф омилларни бартараф этиш усулларини ишлаб чиқиш тиббиётнинг долзарб вазифаларидан биридир. Беморларда статик деформацияларни клиник кўринишлари ҳамда тадқиқотнинг объектив ва субъектив таҳлилларини ўрганиш муҳим аҳамият касб этади.

Калит сўзлар: тадқиқот гуруҳи беморлари, оёқларнинг статик деформациялари, патогинетик таҳлиллар, клиник белгиларнинг номоён бўлиши.

Relevance

At the same time, transverse flat feet are observed in 55.2%, longitudinal – in 29.3%. Hallux valgus is the most common disease among static deformities of the feet. The term "hallux valgus" was first introduced in 1871 by Karl Heuter, who defined it as "lateral deviation of the first toe from the median plane of the body", which, together with the medial deviation of the first metatarsal bone, is accompanied by static subluxation of the first toe. Hallux valgus deformity of the first toe, or hallux valgus, is one of the most common reasons for visiting an orthopedic doctor, while patients, in addition to pain in the forefoot, complain of impaired gait and falls in the elderly. Almost 60% of patients with transverse flat feet show deformities of the first and lateral "rays" in various combinations. Despite the fact that static deformities of the forefoot are widely covered in historical and modern literature, some authors say that it is difficult to determine the true prevalence of the pathology. Systematic differences by gender and age were clearly demonstrated in the Nix study in 2010, which showed that the prevalence of pathology among women was 2.3 times higher than among men. Recent large-scale epidemiological studies have shown that in people over the age of 30, the prevalence among women is 38% compared to 21% for men, and a survey of older people reported that the prevalence among women is 58% and 25% among men. The tendency to increase the prevalence of hallux valgus with age is confirmed by other studies [2.4.6.8.10.12.14.16.18].

Polyethological disease characterized by various static deformities of the foot, often accompanied by metatarsalgia or deformities of the fingers. Metatarsalgia is pain localized in the distal metatarsal bones. And although this definition is quite simple, it only describes one symptom of pain. Pain under the heads of the metatarsal bones can be the result of various systemic diseases (diabetes, rheumatism, etc.) and the result of a biomechanical imbalance or local pathology of the foot. There have been few attempts to classify metatarsalgia. He distinguished primary, secondary, and stress-unrelated metarsalgia. Primary metatarsalgia was defined by him as pain at the PFS level associated with plantar hyperkeratosis, or corns.

Result of functional problems, such as wearing narrow high-heeled shoes or structural problems associated, for example, with "pes cavus" or violations of the metatarsal parabola. In addition, Helal attributed various osteochondropathies (Freinberg's disease), hallux valgus deformity of the first finger, hallux rigidus, and metatarsalgia of an iatrogenic or traumatic nature to primary metatarsalgias. Helal considered secondary metatarsalgia to be pain that occurs against a background of systemic diseases (rheumatism). Metatarsalgia, which occurs due to tarsal tunnel syndrome, as well as due to vascular insufficiency, were classified by them as non-loading metatarsalgias. He divided metatarsalgia into diffuse, local, subcutaneous soft tissue and cutaneous. Diffuse metatarsalgia – as a result of mechanical problems such as "pes cavus", "pes equinus", overload metatarsalgia and metatarsalgia due to wearing narrow high-heeled shoes. According to Regnauld, local metatarsalgia was a consequence of various violations of the metatarsal parabola. Subcutaneous soft tissue metatarsalgia included pain due to metatarsal nerve neurinoma, synovial cysts, and bursitis, while cutaneous metatarsalgia was the result of plantar corns and trophic ulcers. [1.3.5.9.11.13.15].

Obviously, it is quite difficult to classify metatarsalgia. The classifications of all listed authors are based on the etiology of metatarsalgia. [17.19]. Classification of static deformities of the forefoot The main purpose of any classification of diseases and injuries is to identify developmental abnormalities and help in choosing the right treatment method. In our case, surgical correction. Currently, there is not a single ideal classification, and the indicators used to determine mild, moderate, or severe static deformity of the forefoot are not "etched in stone."" [16.18].

Results and analyzes

For example, Piggott believed that a slight outward deviation of the first finger relative to the axis of the first metatarsal is normal, and over 15 degrees is already a hallux valgus deformity. Kelikian proposed to consider a hallux valgus deformity of the first finger up to 20 degrees as a mild deformation, up to 30 degrees as a moderate deformation, and more than 40 degrees as a severe deformation. Other systems for assessing transverse flat feet referred not only to the inclination of the first finger in relation to the first metatarsal bone, but also to the external rotation of the proximal phalanx, as well as to degenerative changes inside the first metatarsophalangeal joint. Alternative diagnostic methods were the so-called noninvasive types of studies using schematic foot drawings and goniometry, but the

reliability of these methods was questioned by other researchers. In 2001, a group of authors presented the Manchester Scale, based on a visual assessment of standardized photographs of feet with varying degrees of anterior deformity.

Traditionally, in medical institutions of the Ministry of Defense of the Russian Federation, including our Center for Traumatology and Orthopedics, in order to issue an expert opinion to determine the fitness category of a serviceman, the classification of lateral flat feet is used, reflected in the relevant guidance documents regulating the conduct of military medical examination. This classification is based on certain radiological criteria and is evaluated by radiographs of the anterior and middle sections of the foot in a straight (dorsal) projection, performed under the load of body weight. Reliable criteria for the degree of transverse flatfoot are the parameters of angular deviations of the First metatarsal and the big toe. Radiographs show 3 straight lines corresponding to the longitudinal axes of the I, II metatarsal bones and the axis of the main phalanx of the first finger. At the first degree of deformation, the angle between the I and II metatarsals is 10-14 degrees, and the angle of deviation of the first finger from the axis of the I metatarsal is 15-20 degrees, at the II degree these angles respectively increase to 15 and 30 degrees, at the III degree – to 20 and 40 degrees, and at the IV degree – exceed 20 and 40 degrees.

At the same time, all the classifications described above assessed the degree of transverse flat feet only by the level of deformation of the first ray or the anteromedial part of the foot, while with transverse flat feet it is advisable to evaluate the entire anterior part of the foot. Other authors classify transverse flat feet, taking into account not only the deviation of the first finger in relation to the first metatarsal bone, but also the external rotation of the proximal phalanx, as well as degenerative changes inside the first metatarsophalangeal joint [8.11.13]. There are many preoperative planning algorithms described in the literature, based on traditional classifications and recommending specific surgical interventions for each degree of transverse flatfoot.

Conclusion

In this regard, in order to facilitate the initial diagnosis at the stage of clinical examination of the patient, determine indications for further in-depth examination, and subsequently facilitate preoperative planning, we were tasked with developing a clinical and surgical classification of static deformities of the forefoot.

LIST OF REFERENCES:

1. Бережной СЮ. «Подлежащий» пятый палец стопы (quintus varus infraductus): описание деформации, классификация, чрескожное хирургическое лечение. Московский хирургический журнал. 2012;(4):19–23.
2. Гамолин СВ. Совершенствование хирургической тактики при лечении больных с поперечным плоскостопием [диссертация]. СПб.; 2011.
3. Еремеев ОВ, Филимендиков ПВ, Шевчук ОВ. Подходы к хирургическому лечению вальгусной деформации 1 пальца стоп в отделении ортопедии СТОБ. Гений ортопедии. 2001;(2):103–104.
4. Журавлев АА, Кудрявцев ВВ. Хирургическое лечение hallux valgus. В: 60 лет на службе охраны здоровья населения Красноярского края: материалы научно-практической конференции. 2002. С. 137–138.
5. Карданов АА, Загородний НВ, Макинян ЛГ, Лукин МП. Влияние угла наклона суставной поверхности первой плюсневой кости на результат хирургического лечения hallux valgus (рентгенологический аспект). Вестник рентгенологии и радиологии. 2007:44–48.
6. Загородний НВ, Процко ВГ, Карданов АА, Дирин ВА. Модифицированная операция McBride в лечении больных с вальгусной деформацией первых пальцев стоп. Вестник РУДН. 2002;(4):73–76.
7. Загородний НВ, Карданов АА, Макинян ЛГ, и др. Некоторые аспекты хирургического лечения деформаций переднего отдела стоп. Вестник РУДН. Серия: Медицина. 2008;(6):151–155.
8. Загородний НВ, Шевченко СБ, Карданов АА, и др. Оперативное лечение метатарзалгии. В: Современные технологии в травматологии и ортопедии: материалы 3-го Международного конгресса. 2006. С. 270.

9. Постановление Правительства РФ №565 от 04.07.2013 (ред. от 14.12.2018) Об утверждении Положения о военно-врачебной экспертизе.
10. Тертышник СС. Оперативное лечение деформаций переднего отдела стопы при hallux valgus [диссертация]. Курган; 2011.
11. Усольцев ИВ, Леонова СН. Проблемы диагностики и хирургического лечения вальгусного отклонения первого пальца стопы (обзор литературы). Acta Biomedica Scientifica. 2017;2(6):118.
12. Юнкеров ВИ, Григорьев СГ. Математико-статистическая обработка данных медицинских исследований. СПб.: ВМедА; 2002. 266 с.
13. Newman AS, Negrine JP, Zevovic M, et al. A biomechanical comparison of the Z step-cut and basilar crescentic osteotomies of the first metatarsal. Foot Ankle Int. 2000;21:584–587.
14. Barouk LS. Forefoot reconstruction. 2nd ed. Paris: Springer; 2005. 388 p.
15. Briggs TW, Smith P, McAuliffe TB. Mitchell's osteotomy using internal fixation and early mobilization. J Bone Joint Surg. 1992;74:137–139.
16. Coetzee JC, Rippstein P. Surgical strategies: scarf osteotomy for hallux valgus. Foot Ankle Int. 2007;28:529–535.
17. De Lavigne C, Guillo S, Laffenêtre O, De Prado M. The treatment of hallux valgus with the mini-invasive technique. Interactive Surgery. 2007;2(1):31–37.
18. Evarts CM. Surgery of the musculoskeletal system. New York: Churchill Livingstone; 1983.
19. Faber F, Kleinrensink GL, Mulder P, Verhaar JA. Mobility of the first tarsometatarsal joint in hallux valgus patients: a radiographic analysis. Foot Ankle Int. 2001;22(12):965–969.

Entered 20.02.2026