

**Gipotireozda ko'krak suti bezning kichik hajmli yaxshi sifatli
doplerografik avaskular o'smalarni tashxislashni ultratovush tekshirishda
elastografiyaning o'rni**

*O'sarov Muhridin Shuhratovich, Mamajanova Dildora Shuhratovna
Samarqand Davlat tibbiyot universiteti, Samarqand, O'zbekiston.*

Maqolada gipotireoz bilan og'rigan bemorlarda ko'krak suti bezning kichik hajmli yaxshisifat doplerografik avaskular o'smalarni tashxislashni ultratovush tekshirishda elastografiyaning o'rni muhokama qilinadi. 2020-2023 yillarda tadqiqotda 18 yoshdan 80 yoshgacha bo'lgan 319 nafar ayol ishtirok etdi, ular sifatli elastografiya va mammografiya yordamida ultratovush tekshiruvidan (UTT) o'tkazildi.

Gipotireoz bo'lgan bemorlarda, hamda gipotireoz bo'lmagan ayollarda ham 5 mm dan kichik xajmli dopler avaskular shakllarni tashxislash uchun ko'krak sut bezining sifatli elastografiyasi bilan UTTdan foydalanish tavsiya etiladi. Gipotireoz bo'lmagan bemorlarda yuqori sifatli elastografiya bilan UTT gipotireoz bilan og'rigan bemorlarga qaraganda samaraliroq.

Kalit so'zlar: ko'krak sut bezi, ultratovush tekshiruv, elastografiya, kista, fibroadenoma

Kirish

Turli xil ko'krak sut bezi kasalliklari ayollar salomatligiga sezilarli ta'sir ko'rsatadi. Yillar davomida ayollarda saraton kasalligi va o'lim darajasi bo'yicha yetakchi bo'lgan ko'krak bezi saratoni (KBS) bilan bir qatorda ko'krak bezining turli xil yaxshisifat patologiyalari muhim o'rin egallaydi.

Sut bezining yaxshisifat patologiyalari ayollarning reproduktiv tizimining eng keng tarqalgan kasalliklaridan biri bo'lib, ayollarning mammologik yordamga murojaat qilishlari uchun asosiy sababdir. Ko'krak patologiyasi bo'lgan ayollar sonining ko'payishining sabablari juda ko'p va ular xavf omillarining mavjudligi bilan bog'liq. Ulardan biri gipotireoz, qalqonsimon bez gormonlari darajasining doimiy pasayishi natijasida yuzaga keladigan klinik sindromdir.

Ba'zi mualliflar gipotireoz va yaxshisifat ko'krak shakllanishi o'rtasidagi bog'liqlikni ta'kidlaydilar. Qarama-qarshi ma'lumotlar E. Giustarini va boshq. tomonidan taqdim

etilgan, ularning natijalariga ko'ra, qalqonsimon bez funktsiyasining pasayishi va ko'krak bezi patologiyasining rivojlanishi o'rtasidagi bog'liqlik aniqlanmagan. Ko'krak bezi patologiyasini tashxislashda ultratovush tekshiruvi (UTT) muhim o'rin egallaydi. Biroq, sut bezining kichik yaxshisifat o'smasimon xosilalarni o'z vaqtida differentsial diagnostika qilish masalasi hal qilinmagan. Ulardan eng keng tarqalgani zich tarkibli kistalar va hajmi 10 mmdan kam bo'lgan fibroadenomalaridir.

Bu, ayniqsa, prognoz va davolash taktikasidagi sezilarli farqlar tufayli juda muhimdir. Kichkina yaxshi sifat ko'krak xosilalarni noinvaziv diagnostikasining ahamiyati, shuningdek, invaziv usullarni qo'llashning jiddiy qiyinchiliklari bilan bog'liq [2, 5].

Yuqori sifatli elastografiya bilan ko'krak ultratovush tekshiruvi zich tarkibli kichik kistalar va kichik fibroadenomalarning differentsial tashxisini yaxshilashga yordam beradigan usul hisoblanadi [11-16].

Sifatli elastografiya metodikasi to'qimalarning turli qismlarining mexanik xususiyatlarida farqlar mavjudligiga va ularni mexanik ta'sirdan keyin tasvirlash qobiliyatiga asoslanadi [14, 16-18].

Shu munosabat bilan, tadqiqotning maqsadi gipotireoz bilan kasallangan bemorlarda kichik yaxshisifat dopler avaskular xosilalarni tashxislashda yuqori sifatli elastografiya bilan ko'krak suti bezi ultratovush tekshiruvining o'rnini aniqlashdir.

Materiallar va usullar

Ushbu maqsadga erishish uchun 18-80 yoshgacha bo'lgan 319 nafar ayol tibbiy ko'rikdan o'tkazildi. Tadqiqot 2020-2023 yillarda bo'lib o'tdi. Guruh uchun tanlov mezoni ko'krakning ultratovush tekshiruvi paytida aniqlangan, diagnostik jihatdan muhim belgilersiz va kichik yaxshisifat ko'krak xosilalar o'rtasida differentsial tashxis qo'yishni talab qiladigan yagona kichik gipoexogen dopler avaskular tuzilmalar edi.

Qon plazmasida gipofizning tireotrop gormoni konsentratsiyasining 4 mkB/ml dan oshishi ushbu kasallik tashxisiga umumiy qabul qilingan yondashuvlarga ko'ra, gipotireoz mavjudligining diagnostik mezoni sifatida qabul qilingan [19].

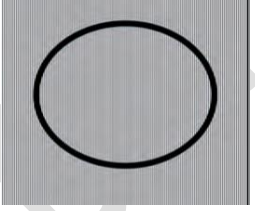
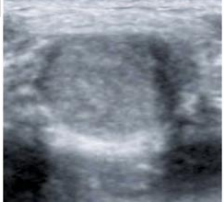
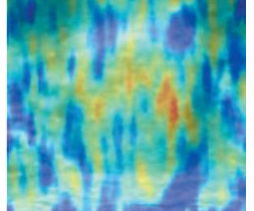

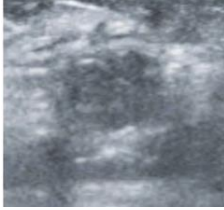
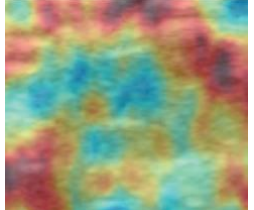
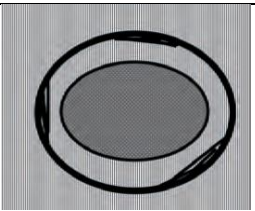
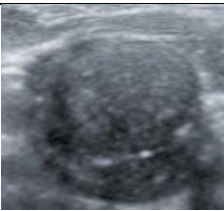
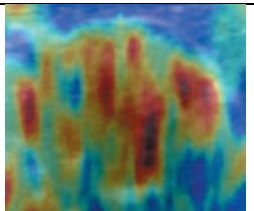
Tadqiqotda gipotireoz bilan og'rigan 161 (50,5%) bemor va gipotireoz bo'lmagan

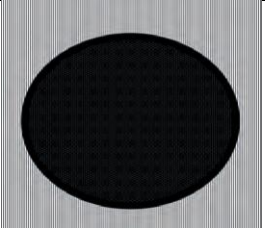
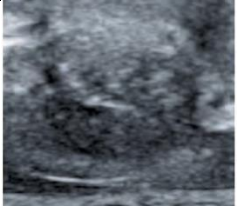
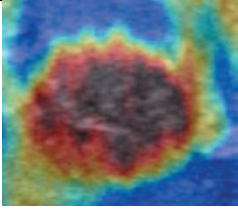
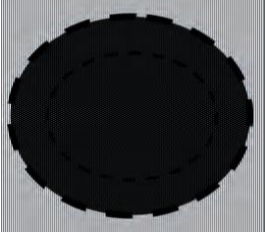
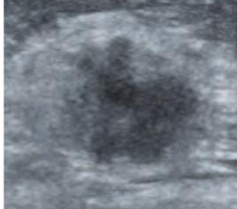
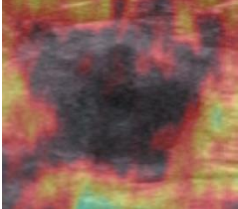
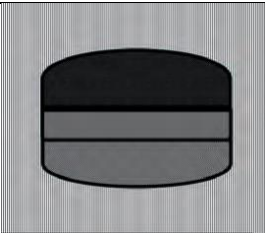
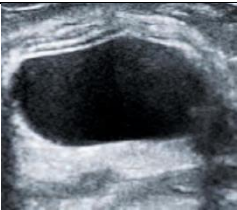
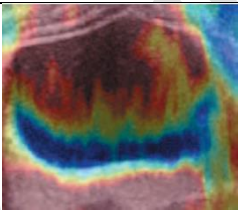
158 (49,5%) ayollar ishtirok etdi. Bemorlarga yuqori sifatli elastografiya yordamida ko'krak suti bezi UTT o'tkazildi. Vaskularizatsiya yo'qligini aniqlash uchun energetik dopler kartirlash o'tkazildi.

Tadqiqotlar SonoScape S-50 ultratovush skanerida ko'p chastotali chiziqli datchik yordamida amalga oshirildi. Barcha kuzatuvlar morfologik tekshirildi. Elastografik ultratovush tasvirini sharhlash uchun biz A. Itoh shkalasi va S. Wojcinski va I. A. Gheonea ma'lumotlari asosida oddiy kistaga mos keladigan qo'shimcha turdagi elastogramma bilan o'zimiz tomonidan modifikasialangan 5 balli shkaladan foydalandik [11, 14, 20].

Taqdim etilgan modifikatsiya elastografik rasmning to'liq sxematik tasviridan iborat bo'lib, bu bizga boshqa tasniflarda qo'llaniladigan to'qimalarning elastografik xususiyatlarini rangli rasmga e'tibor qaratishdan qochish imkonini beradi. Bundan tashqari, sxematik tasnif bizga elastografik rasmni talqin qilish yondashuvini standartlashtirishga imkon beradi (1-jadval).

1 Jadval. Elastografik tasvirlarni tasniflash sxemasi

Elasttagramm a tiplari	Elastogrammani sxemasi	Sonogramma	Elastogramma	Xulosa
I tip				Yaxshi sifatli xosila
II tip				Yaxshi sifatli xosila
III tip				Ehtimoliy yaxshisifatli xosila

IV tip				Ehtimoliy yomon sifatli
V tip				Yomon sifatli
VI tip				Oddiy kista

Natijalar va muhokama

Kichik avaskular xosilalarni kuzatuvlari 2 guruhga bo'lingan: o'lchami 5-10 mm va o'lchami ≤ 4 mm. 319 bemorda 395ta kichik fibroadenomalar va zich tarkibli kistalar tashxisi qo'yilgan. Fibroadenomalar va zichligi 5-10 mm bo'lgan kistalar 2 martadan ko'proq tez-tez aniqlangan: 136 (34,5%) gipotireoz bo'lgan bemorlar va 142 (35,9%) gipotireozsiz bemorlar ≤ 4 mm bo'lgan fibroadenomalar va zich tarkibli kistalarga qaraganda: 57 (14,4%) bemorlarda gipotireoz va 60 (15,2%) bemorlarda gipotireoz yo'q. Kichkina fibroadenomalar va zich tarkibli kistalar tez-tez aniqlangan - 202 (51,1%) va 193 (48,9%) mos ravishda kuzatuvlar.

Ushbu tadqiqot gipotireoz kichik yaxshisifat dopler avaskular xosilalar ta'sirining tabiatini o'rganadigan birinchi tadqiqotdir. Gipotireoz va kichik dopler avaskular xosilalar rivojlanishi o'rtasida statistik jihatdan ahamiyatli bog'liqlik yo'q. Gipotireoz bilan og'rigan bemorlarda 5-10 mm o'lchamdagi xosilalarni aniqlash uchun imkoniyat nisbati 95% ishonch intervali 0,6-1,6 ($p = 0,9$; $p > 0,05$) bilan 1ni tashkil qildi. Gipotireoz bo'lgan bemorlarda ≤ 4 mm o'lchamdagi xosilalarni aniqlash uchun imkoniyat nisbati 0,9 ni tashkil etdi, 95% ishonch oralig'i 0,6-1,5 ($p = 0,9$; $p > 0,05$).

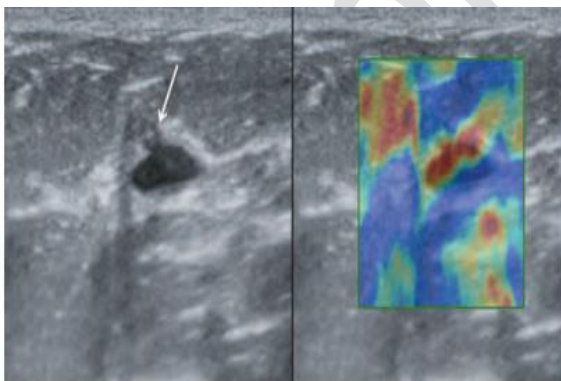
Gipotireoz bilan og'rigan bemorlarda ko'krak sut bezining kichik dopler avaskular xosilalarni, qoida tariqasida, har xil turdagi diffuz mastopatiya fonida aniqlangan soni - 109 (27,5%) tashkil etdi; normal tuzilish variantlari fonida gipotireoz bo'lmagan bemorlarda - 73 (18,5%) aniqlandi. Gipotireoz bilan kasallangan bemorlarda sut bezining kichik avaskular xosilalarni uchun eng kam uchraydigan fon patologiyasi ko'krak bezi saratoni edi - 4 (1%) kuzatuv; gipotireoz bo'lmagan bemorlarda - sklerozli adenoz - 1 (0,2%) kuzatuvini tashkil etdi.

Gipotireoz qarab sut bezining kichik avaskular xosilalar tashxislashda UTT diagnostik samaradorligi va ultratovushning sifatli elastografiya bilan kombinatsiyasi baholandi (2-jadval).

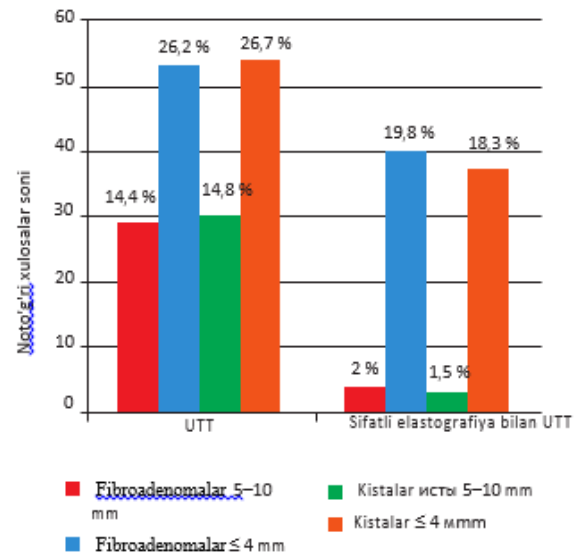
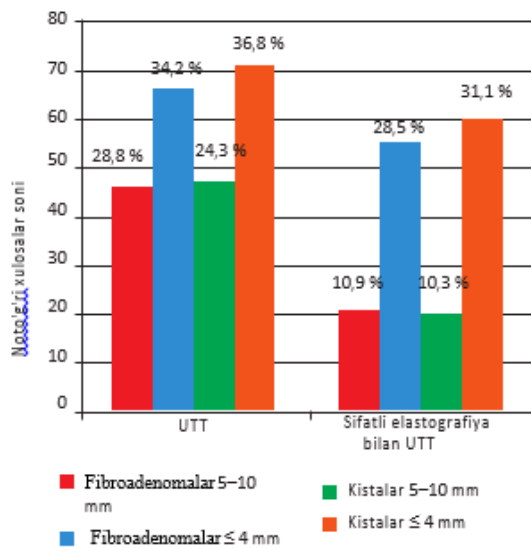
2.Jadval Gipotireozda bog'liq bo'lgan kichik yaxshisifat dopler avaskular ko'krak suti bezi xosilalarni tashxislashda ko'krak UTT va sifatli elastografiya bilan ko'krak ultratovushining sezgirligi va o'ziga xosligi ko'rsatkichlari.

Yuqori sifatli elastografiya bilan UTT foydalanish gipotireoz bilan og'rikan bemorlarda zichligi 5- 10 mm bo'lgan fibroadenomalar va kistalarni tashxislashning spesifiklikni sezilarli darajada mos ravishda 89,5 va 90,5% gacha oshirdi,. Gipotireoz bo'lmagan bemorlarda yuqori sifatli elastografiya bilan UTT foydalanish spesifiklik darajasini mos ravishda 97,8 va 98,4% ga oshirdi (1-rasm).

Gipotireoz borligi	Izlanish natijasi	1 a' sar ko'rsatkichlari	Fibroadenomalar		Qalin tarkibli kistalar	
			5-10 mm	≤ 4 mm	5-10 mm	≤ 4 mm
Gipotireoz bor	UTT	Sezuvchanlik, %	88,4	86,2	88,1	85,7
		Spesifiklik, %	69,3	62,2	69,1	59,4
	UTT + elastografiya	Sezuvchanlik, %	88,4	86,2	88,1	85,7
		Spesifiklik, %	89,5	68,9	90,5	66,1
Gipotireoz Yo'q	UTT	Sezuvchanlik, %	98,5	92,6	98,7	93,9
		Spesifiklik, %	79,1	70,9	77,3	69,2
	UTT + elastografiya	Sezuvchanlik, %	98,5	92,6	98,7	93,9
		Spesifiklik, %	97,8	78,3	98,4	79,3



1-Rasm. Bemor Yu., 32 yosh. Protok kistasi. Yuqori sifatli elastografiya bilan UTT. Yumshoq, aniq konturli, geterogen anexogen tuzilishga ega, 10 × 4 mm o'lchamdagi, unga to'g'ri keladigan kanallar bilan oval shaklli xosila aniqlanadi (strelka). Sifatli elastografiya oddiy kistalarga xos bo'lgan elastogramma turini aniqlaydi.



2-Rasm. Gipotireoz bilan og'rigan bemorlarda kichik dopler avaskular ko'krak xosilalar tashxislashda yuqori sifatli elastografiya bilan UTT va yuqori sifatli elastografiyasiz UTT ta'siri.

3-Rasm. Gipotireoz bilan og'rimagan bemorlarda kichik dopler avaskular ko'krak xosilalar tashxislashda yuqori sifatli elastografiya bilan UTT va yuqori sifatli elastografiyasiz UTT ta'siri.

Fibroadenomalar va zich tarkibi ≤ 4 mm tashxislashning o'ziga xosligi ham ortdi, ammo unchalik sezilarli emas - gipotireoz bo'lgan bemorlarda mos ravishda 68,9 va 66,1% gacha va gipotireoz bo'lmagan bemorlarda mos ravishda 78,3 va 79,3% gacha. Kichik avaskular xosilalarning UTT diagnostikasining sezgirliigi yuqori sifatli elastografiya qo'shilishi bilan o'zgarmadi.

Shunday qilib, fibroadenomalar va < 10 mm o'lchamdagi kistalarni tashxislash uchun UTT o'ziga xosligi sezuvchanlik darajasidan past, ammo UTT va sifatli elastografiyadan foydalanganda unga yaqin edi. Bu bizga olingan natijalarning bir qator xorijiy mualliflarning ma'lumotlari bilan mos kelishi haqida gapirishga imkon beradi [12, 16, 21, 22]. Biroq, bu tadqiqotlarda o'ziga xoslik ko'rsatkichi sezgirlik ko'rsatkichidan keskin farq qiladi.

I. A. Gheonea va A. Tomas izlanishlarida elastografiyaning o'ziga xosligi sezuvchanlikdan oshib ketgan. Bizning ma'lumotlarimiz bilan bunday farqlar, shubhasiz, ushbu ishlarda elastografiyadan izolatsiyalangan foydalanish samaradorligi masalalari muhokama qilinganligi bilan bog'liq [12, 14].

UTT sifatli elastografiya bilan qo'llashning noto'g'ri kuzatuvlar soniga nisbatan faqat UTT yordamida solishtirganda ta'siri rasmda diagramma shaklida keltirilgan. 2 va 3.

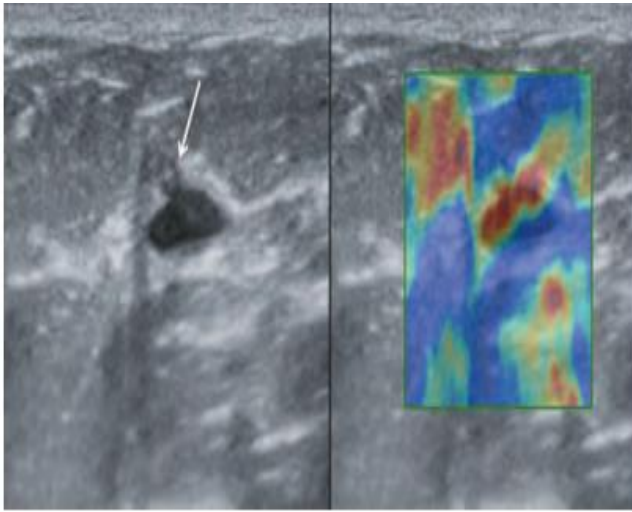
Gipotireoz bilan va gipotireoz bo'lmagan bemorlarda taqdim etilgan ma'lumotlardan ma'lum bo'lishicha, yuqori sifatli elastografiya bilan UTT foydalanganda yuqori sifatli elastografiyasiz UTT bilan solishtirganda, 5-10 mm gacha bo'lgan xosilalar uchun noto'g'ri xulosalar soni kamaydi. □□4 mm o'lchamdagi tuzilmalar sezilarli darajada o'zgarmadi.

Gipotireoz bilan og'rigan bemorlar kichik yaxshisifat dopler avaskular xosilalar differensial diagnostikasi samaradorligining pastligi bilan tavsiflanadi.

Gipotireoz bo'lgan bemorlarda UTT yordamida 5-10 mm o'lchamdagi shakllanishlarni tashxislashda noto'g'ri natijalarning asosiy sababi diffuz mastopatiyaning turli xil variantlari - 51 (54,8%) aniqlangan edi. Yuqori sifatli elastografiya bilan UTT foydalanish diffuz mastopatiyadan kelib chiqqan noto'g'ri xulosalar sonini 30 (32,2%) kuzatishgacha kamaytirish imkonini berdi. Gipotireoz bo'lmagan bemorlarda UTT yordamida 5-10 mm o'lchamdagi xosilalarni tashxislashda noto'g'ri natijalarning eng keng tarqalgan sababi ham turli xil diffuz mastopatiya - 24 (40,7%) kuzatuvlar edi. Yuqori sifatli elastografiya bilan UTT foydalanish diffuz mastopatiyadan kelib chiqqan barcha noto'g'ri xulosalarni yo'q qilishga imkon berdi. Noto'g'ri natijalar faqat 4 (6,8%) holatda fibroadenomalar va kistlar o'rtasida differensial tashxis qo'yishdagi qiyinchiliklar bilan bog'liq.

Gipotireoz bilan og'rigan bemorlarda noto'g'ri natijalar tuzilishida diffuz mastopatiya variantlarining ustunligi uning diffuz mastopatiya rivojlanishiga ta'sirining yuqorida tavsiflangan xususiyatlari bilan bog'liq [23]. □□4 mm o'lchamdagi fibroadenoma va kistalarga tashxis qo'yishda UTT yordamida noto'g'ri natijalar 55 (40,1%) holatda differensial diagnostikadagi qiyinchiliklar va 43 (31,4%) holatda normal tuzilish variantlari sabab bo'lgan. Yuqori sifatli elastografiya bilan UTT foydalanish fibroadenomalar va zich tarkibli kistalar, shuningdek 45 (32,8%) va 38 (38) dagi normal tuzilish variantlari o'rtasida differensial tashxis qo'yishdagi qiyinchiliklardan kelib chiqadigan noto'g'ri

xulosalar sonini sezilarli darajada kamaytirishga imkonini berdi 27,7% kuzatuvlari (4-rasm).



4-Rasm. Bemor D., 35 yosh. Yuqori sifatli elastografiya bilan UTT qo'llashda silliq, aniq konturli oval shaklli xosila, 4×2 mm o'lchamdagi geterogen gipoexogen tuzilish aniqlanadi - kist (splosh o'q). Sifatli elastografiya bilan 2-toifa elastogramma aniqlanadi, bu uni asosiy oval tuzilishdan 1-toifa elastogramma – yog' to'qimalarining to'planishi (punktir o'q) bilan ajratib turadi.

Gipotireoz bo'lmagan bemorlarda noto'g'ri natijalarning sabablari orasida $\square\square 4$ mm o'lchamdagi fibroadenomalar va kistalar va ko'krak suti bezi to'qimalarining normal tuzilishi variantlari - 52 (48,6%) va 43 (40,1%) kuzatuvlari orasida differensial tashxis qo'yishdagi qiyinchiliklar ham ustunlik qildi. Ko'krak suti bezi to'qimalarining normal tuzilishi variantlari holatlari yuqori sifatli elastografiya bilan UTT foydalanish noto'g'ri xulosalar sonini $\square\square\square 4$ mm o'lchamdagi fibroadenomalar va kistalar o'rtasida differentsial tashxis qo'yishdagi qiyinchiliklar tufayli 37 (34,6%) kuzatuvga va 38 taga (35,5%) kamaytirish imkonini berdi.

L. Fu va boshq. $\square\square 10$ mm o'lchamdagi xosilalarni diagnostikasida yuqori sifatli elastografiya bilan UTT foydalanishning yolg'on-salbiy natijalarini faqat UTT qo'llash bilan solishtirganda butunlay yo'q qilish mumkin edi. Bu sezuvchanlik darajasining sezilarli darajada oshishi (66,7 dan 100% gacha) bilan namoyon bo'ldi, ammo sifatli elastografiya bilan UTT o'ziga xoslik darajasi kamaydi (95,1 dan 73,8% gacha). Bizning tadqiqotimizda, aksincha, sifatli elastografiya bilan UTT

foydalanish faqat UTT qo'llash bilan solishtirganda sezgirlik ko'rsatkichining qiymatiga ta'sir qilmadi, balki o'ziga xoslik ko'rsatkichining qiymatini oshirishga imkon berdi [24].

Yuqori sifatli elastografiya yordamida diagnostika samaradorligiga shakllanish hajmining ta'siri muammolari bir qator ishlarda o'z aksini topgan. Biroq, hozirda o'sma hajmining elastografiya samaradorligiga ta'siri bo'yicha konsensus mavjud emas[11-13,15,25].

E. Regini va boshq. diametri < 20 mm bo'lgan xosilalarni tashxislashda elastografiyaning yuqori sezuvchanligi va o'ziga xosligi olingan. Biroq, ish biz tavsiflagan < 5 mm o'lchamdagi tuzilmalarni tanib olishda yuqori sifatli elastografiya samaradorligidagi o'zgarishlarni aks ettirmaydi [13]. G. M. Juzepetti va boshq. xosilalarni kattaligi bo'yicha guruhlashda biznikiga nisbatan boshqacha yondashuvni ko'rsatdi. Ularning ma'lumotlariga ko'ra, diagnostika samaradorligining optimal qiymatlari diametri < 20 mm bo'lgan xosilalar uchun kuzatiladi va diametri > 20 mm bo'lgan xosilalar uchun elastografiyaning sezgirligi va o'ziga xosligi pasayadi [25]. Diametri < 10 mm bo'lgan xosilalar uchun yuqori sifatli elastografiyaning xususiyatlari E. A. Busko va boshqalarning ishida ko'rib chiqiladi, u 5-10 mm o'lchamdagi xosilalarni tashxislashda yuqori sifatli elastografiyaning past sezgirlik qiymatlarini tavsiflaydi. Bizning tadqiqotimizda tasvirlangan $\square\square\square 4$ mm o'lchamdagi kichikroq xosilalarni tashxislash xususiyatlari E. A. Busko va boshqalarning tadqiqotida aks ettirilmagan. [15]. Bizning ma'lumotlarimiz A. Stachs va boshqalarning natijalariga ziddir. Ularning ma'lumotlariga ko'ra, xosilalar hajmi elastografiya samaradorligiga ta'sir qilmaydi [16].

Xulosalar

Gipotireoz bo'lgan bemorlarda zichligi 5-10 mm bo'lgan fibroadenomalar va kistalarni tashxislashda yuqori sifatli elastografiya yordamida ko'krak suti bezi UTT sezgirligi va o'ziga xosligi mos ravishda 88,4 va 89,5% va mos ravishda 88,1 va 90,5%ni tashkil qiladi. Gipotireoz bo'lmagan bemorlarda zichligi 5-10 mm bo'lgan fibroadenomalar va kistalarni tashxislash uchun yuqori sifatli elastografiya bilan

ko'krak suti bezi UTT sezgirligi va o'ziga xosligi mos ravishda 98,5 va 97,8% va mos ravishda 98,7 va 98,4%ni tashkil qiladi. Gipotireoz bilan kasallangan bemorlarda fibroadenomalar va zich ≤ 4 mm hajmdagi kistalar diagnostikasida yuqori sifatli elastografiya bilan ko'krak suti bezi UTT sezgirligi va o'ziga xosligi mos ravishda 86,2 va 68,9% va mos ravishda 85,7 va 66,1% ni tashkil qiladi. Gipotireoz bo'lmagan bemorlarda zichligi ≤ 4 mm bo'lgan fibroadenomalar va kistalarni tashxislashda sifatli elastografiya bilan ko'krak suti bezi UTT sezgirligi va o'ziga xosligi mos ravishda 92,6 va 78,3%, mos ravishda 93,9 va 79,3% ni tashkil qiladi.

Yuqori sifatli elastografiya bilan ko'krak suti bezi UTT foydalanish gipotireoz bo'lgan bemorlarda ham, gipotireoz bo'lmagan bemorlarda ham kichik Ddopleroppler avaskular xosilalar - zich tarkibli va fibroadenli kistalar - 5 mm o'lchamdagi diagnostika uchun tavsiya etiladi ≤ 4 mm o'lchamdagi dopler avaskular ko'krak sut bezi xosilalarni tashxislash qiyin, chunki yuqori sifatli elastografiya ham gipotireoz bilan og'rigan bemorlarda ham, gipotireoz bo'lmagan bemorlarda ham UTT samaradorligini oshirmaydi.

Gipotireoz bilan og'rigan bemorlarda yuqori sifatli elastografiyadan foydalanish gipotireoz bo'lmagan bemorlar bilan taqqoslanadigan samaraga erishishga imkon bermaydi.

Shunday qilib, gipotireoz bilan og'rigan bemorlarda dopler avaskular fibroadenomalar va zich tarkibi 5-10 mm bo'lgan kistalarni tanib olish uchun yuqori sifatli elastografiya bilan birgalikda ko'krak suti bezi UTT foydalanish kerak.

Adabiyotlar

1. Abdurakhmanovich, K. O., & ugli, G. S. O. (2022). Ultrasonic Diagnosis Methods for Choledocholithiasis. Central Asian Journal Of Medical And Natural Sciences, 3(2), 43-47.
2. Abdurakhmanovich, K. O., & ugli, G. S. O. (2022). Ultrasound Diagnosis of the Norm and Diseases of the Cervix. Central Asian Journal Of Medical And Natural Sciences, 3(2), 58-63.
3. Akbarov S. et al. VALUE OF US AND DOPPLEROMETRY IN CHRONIC PYELONEPHRITIS OF PREGNANT WOMEN //Yangi O'zbekiston talabalari axborotnomasi. – 2023. – T. 1. – №. 2. – C. 26-29.

4. Akhmedov YA, Ataeva SKh, Ametova AS, Bazarova SA, Isakov HKh THE HISTORY OF THE DEVELOPMENT OF RADIATION DIAGNOSTICS. Web of scientist: International scientific research journal. 2021;2:34-42.
5. Akhmedov YA, Rustamov UKh, Shodieva NE, Alieva UZ, Bobomurodov BM Modern Application of Computer Tomography in Urology. Central Asian journal of medical end natural sciences. 2021;2(4):121-125.
6. Alimdjanovich, R.J., Obid , K., Javlanovich, Y.D. and ugli, G.S.O. 2022. Advantages of Ultrasound Diagnosis of Pulmonary Pathology in COVID-19 Compared to Computed Tomography. Central Asian Journal of Medical and Natural Science. 3, 5 (Oct. 2022), 531-546.
7. Amandullaevich A. Y., Abdurakhmanovich K. O. Organization of Modern Examination Methods of Mammary Gland Diseases //Central Asian Journal of Medical and Natural Science. – 2022. – T. 3. – №. 5. – C. 560-569.
8. Ataeva SKh, Ravshanov ZKh, Ametova AS, Yakubov DZh Radiation visualization of chronic joint diseases. Central Asian journal of medical end natural sciences. 2021;2(2):12-17
9. Babajanovich K. Z., Abdurakhmanovich K. O., Javlanovich Y. D. Ultrasound and MSCT as the Next Step in the Evolution of the Examination of Patients with Ventral Hernias //Central Asian Journal of Medical and Natural Science. – 2022. – T. 3. – №. 5. – C. 583-591.
10. Hamidov OA, Diagnostics of injuries of the soft tissue structures of the knee joint and their complications. European research. Moscow. 2020;1(37):33-36.
11. Kadirov J. F. et al. NEUROLOGICAL COMPLICATIONS OF AIDS //Journal of new century innovations. – 2022. – T. 10. – №. 5. – C. 174-180.
12. Khamidov OA, Akhmedov YA, Ataeva SKh, Ametova AS, Karshiev BO Role of Kidney Ultrasound in the Choice of Tactics for Treatment of Acute Renal Failure. Central Asian journal of medical end natural sciences. 2021;2(4):132-134
13. Khamidov OA, Akhmedov YA, Yakubov DZh, Shodieva NE, Tukhtaev TI DIAGNOSTIC POSSIBILITIES OF USES IN POLYKYSTOSIS OF KIDNEYS. Web of scientist: International scientific research journal. 2021;2(8):27-33
14. Khamidov OA, Ataeva SKh, Ametova AS, Yakubov DZh, Khaydarov SS A Case of Ultrasound Diagnosis of Necrotizing Papillitis. Central Asian journal of medical end natural sciences. 2021;2(4):103-107
15. Khamidov OA, Ataeva SKh, Yakubov DZh, Ametova AS, Saytkulova ShR ULTRASOUND EXAMINATION IN THE DIAGNOSIS OF FETAL MACROSOMIA. Web of scientist: International scientific research journal. 2021;2(8):49-54
16. Khamidov OA, Khodzhanov IYu, Mamasoliev BM, Mansurov DSh, Davronov AA, Rakhimov AM The Role of Vascular Pathology in the Development and Progression of Deforming Osteoarthritis of the Joints of the Lower Extremities (Literature Review). Annals of the Romanian Society for Cell Biology, Romania. 2021;1(25):214 – 225

17. Khamidov OA, Mirzakulov MM, Ametova AS, Alieva UZ Multispiral computed tomography for prostate diseases. Central Asian journal of medical end natural sciences. 2021;2(2):9-11
18. Khamidov OA, Normamatov AF, Yakubov DZh, Bazarova SA Respiratory computed tomography. Central Asian journal of medical end natural sciences. 2021;2(2):1-8
19. Khamidov OA, Urozov UB, Shodieva NE, Akhmedov YA Ultrasound diagnosis of urolithiasis. Central Asian journal of medical end natural sciences. 2021;2(2):18-24
20. Khamidov OA, Yakubov DZh, Alieva UZ, Bazarova SA, Mamaruziev ShR Possibilities of Sonography in Differential Diagnostics of Hematuria. Central Asian journal of medical end natural sciences. 2021;2(4):126-131
21. Khamidov OA, Yakubov DZh, Ametova AS, Bazarova SA, Mamatova ShT Application of the Ultrasound Research Method in Otorhinolaryngology and Diseases of the Head and Neck Organs. International Journal of Development and Public Policy. 2021;1(3):33-37
22. Khamidov OA, Yakubov DZh, Ametova AS, Turdumatov ZhA, Mamatov RM Magnetic Resonance Tomography in Diagnostics and Differential Diagnostics of Focal Liver Lesions. Central Asian journal of medical end natural sciences. 2021;2(4):115-120
23. Khamidov Obid Abdurakhmanovich, Davranov Ismoil Ibragimovich, Ametova Alie Servetovna. (2023). The Role of Ultrasound and Magnetic Resonance Imaging in the Assessment of Musculo-Tendon Pathologies of the Shoulder Joint. International Journal of Studies in Natural and Medical Sciences, 2(4), 36–48. Retrieved from <https://scholarsdigest.org/index.php/ijsnms/article/view/95>
24. Khasanova Diyora Zafarjon kizi, Khamidov Obid Abdurakhmonovich and Juraev Kamoliddin Danabaevich 2023. SYMPHYSIOPATHY AND PREGNANCY. "Conference on Universal Science Research 2023". 1, 2 (Feb. 2023), 55–60.
25. Khudayberdiyevich Z. S. et al. Possibilities and Prospects of Ultrasound Diagnostics in Rheumatology //Central Asian Journal of Medical and Natural Science. – 2022. – T. 3. – №. 5. – C. 570-582.
26. Nurmurzayev Z.N.; Suvonov Z.K.; Khimmatov I.Kh. Ultrasound of the Abdominal Cavity. JTCOS 2022, 4, 89-97.
27. Obid, K., Servetovna, A. A., & Javlanovich, Y. D. (2022). Diagnosis and Structural Modification Treatment of Osteoarthritis of the Knee. Central Asian Journal of Medical and Natural Science, 3(5), 547-559.
28. Rustamov UKh, Shodieva NE, Ametova AS, Alieva UZ, Rabbimova MU US-DIAGNOSTICS FOR INFERTILITY. Web of scientist: International scientific research journal. 2021;2(8):55-61
29. Rustamov UKh, Urinboev ShB, Ametova AS Ultrasound diagnostics of ectopic pregnancy. Central Asian journal of medical end natural sciences. 2021;2(2):25-28

30. Usarov M.Sh, Otakulov Z.Sh and Rakhmonkulov Sh. H. 2022. Contrast-enhanced ultrasound in the differential diagnosis of focal nodular hyperplasia and hepatocellular liver adenoma. *Journal the Coryphaeus of Science*. 4, 4 (Dec. 2022), 70–79.
31. Yakubov , J., Karimov , B., Gaybullaev , O., and Mirzakulov , M. 2022. Ultrasonic and radiological picture in the combination of chronic venous insufficiency and osteoarthritis of the knee joints. *Academic Research in Educational Sciences*. 5(3), pp.945–956.
32. Yakubov D. Z., Gaybullaev S. O. The diagnostic importance of radiation diagnostic methods in determining the degree of expression of gonarthrosis //UZBEK JOURNAL OF CASE REPORTS. – С. 36.
33. Yakubov D.J., Turanov A.R. and Baymuratova A.C. 2022. Possibilities of contrast-enhanced ultrasound tomography in the diagnosis of metastatic liver lesions in patients with cervical cancer. *Journal the Coryphaeus of Science*. 4, 4 (Dec. 2022), 80–88.
34. Yakubov Doniyor Javlanovich, Juraev Kamoliddin Danabaevich, Gaybullaev Sherzod Obid ugli, and Samiev Azamat Ulmas ugli. 2022. “INFLUENCE OF GONARTHROSIS ON THE COURSE AND EFFECTIVENESS OF TREATMENT OF VARICOSE VEINS”. *Yosh Tadqiqotchi Jurnal* 1 (4):347-57.
35. Yusufzoda Hosiyat Turon kizi, Khamidov Obid Abdurakhmonovich and Juraev Kamoliddin Danabaevich 2023. DIAGNOSIS OF CHANGES IN PREGNANT WOMEN WITH VULVOVAGINITIS. "Conference on Universal Science Research 2023". 1, 2 (Feb. 2023), 51–55.
36. Ахмедов Якуб Амандуллаевич; Гайбуллаев Шерзод Обид угли; Хамидова Зиёда Абдихабобовна. МРТ В СРАВНЕНИИ С ДИАГНОСТИЧЕСКОЙ АРТРОСКОПИЕЙ КОЛЕННОГО СУСТАВА ДЛЯ ОЦЕНКИ РАЗРЫВОВ МЕНИСКА. *Tadqiqotlar* 2023, 7, 105-115.
37. Гайбуллаев Ш., Усаров М., Далерова М. НОРМАЛЬНЫЕ УЛЬТРАЗВУКОВЫЕ РАЗМЕРЫ ЖЕЛЧНОГО ПУЗЫРЯ И ОБЩЕГО ЖЕЛЧНОГО ПРОТОКА У НОВОРОЖДЕННЫХ // *Involta Scientific Journal*. – 2023. – Т. 2. – №. 1. – С. 142-148.
38. Кадиров Ж. Ф. и др. МАГНИТНО-РЕЗОНАНСНАЯ ТОМОГРАФИЧЕСКАЯ ОЦЕНКА ПОРАЖЕНИЙ ЦЕНТРАЛЬНОЙ НЕРВНОЙ СИСТЕМЫ У БОЛЬНЫХ, ИНФИЦИРОВАННЫХ ВИРУСОМ ИММУНОДЕФИЦИТА ЧЕЛОВЕКА // *Journal of new century innovations*. – 2022. – Т. 10. – №. 5. – С. 157-173.
39. Нурмурзаев, З. Н., Жураев, К. Д., & Гайбуллаев, Ш. О. (2023). ТОНКОИГОЛЬНАЯ АСПИРАЦИОННАЯ ЦИТОЛОГИЯ ПОД УЛЬТРАЗВУКОВЫМ КОНТРОЛЕМ В ДИАГНОСТИКЕ ЗАБРЮШИННЫХ ОБРАЗОВАНИЙ: ИССЛЕДОВАНИЕ 85 СЛУЧАЕВ. *Academic Research in Educational Sciences*, 4(4), 126–133.
40. Хамидов , О. , Гайбуллаев , Ш. и Давранов , И. 2023. СРАВНЕНИЕ РЕЗУЛЬТАТОВ УЗИ И МРТ В ДИАГНОСТИКЕ ПОВРЕЖДЕНИЙ

- МЕНИСКА КОЛЕННОГО СУСТАВА. Евразийский журнал медицинских и естественных наук. 3, 4 (апр. 2023), 176–183.
41. Хамидов О. А., Гайбуллаев Ш. О., Хакимов М. Б. ОБЗОР МЕТОДОВ ОБРАБОТКИ ИЗОБРАЖЕНИЙ ДЛЯ ДИАГНОСТИКИ ПАТОЛОГИИ ГОЛОВНОГО МОЗГА: ПРОБЛЕМЫ И ВОЗМОЖНОСТИ //Journal of new century innovations. – 2022. – Т. 10. – №. 5. – С. 181-195.
 42. Хамидов О. А., Гайбуллаев Ш. О., Хомидова Д. Д. РОЛЬ УЛЬТРАЗВУКА И МАГНИТНО-РЕЗОНАНСНОЙ ТОМОГРАФИИ В ОЦЕНКЕ МЫШЕЧНО-СУХОЖИЛЬНЫХ ПАТОЛОГИЙ ПЛЕЧЕВОГО СУСТАВА //Uzbek Scholar Journal. – 2023. – Т. 12. – С. 125-136.
 43. Хамидов О.А. Оптимизация лучевой диагностики повреждений мягкотканых структур коленного сустава и их осложнений, Американский журнал медицины и медицинских наук. 2020;10 (11):881-884. (In Russ.)
 44. Хамидов, О. А., Жураев, К. Д., & Муминова, Ш. М. (2023). СОНОГРАФИЧЕСКАЯ ДИАГНОСТИКА ПНЕВМОТОРАКСА. *World scientific research journal*, 12(1), 51-59.
 45. Ходжибеков М.Х., Хамидов О.А. Обоснование ультразвуковой диагностики повреждений внутрисуставных структур коленного сустава и их осложнений. 2020;3(31):526-529. (In Russ.)
 46. Юсуфзода Х. и др. ОПТИМАЛЬНЫЕ МЕТОДЫ ДИАГНОСТИКИ СИНДРОМА МИРИЗЗИ //Yangi O'zbekiston talabalari axborotnomasi. – 2023. – Т. 1. – №. 2. – С. 21-25.
 47. Якубов Д. Д., Давранов И. И., Шодикулова П. Ш. ХАРАКТЕРИСТИКИ МСКТ И ДИАГНОСТИЧЕСКАЯ ЦЕННОСТЬ COVID-19 ПРИ БЕРЕМЕННОСТИ //Journal of new century innovations. – 2023. – Т. 22. – №. 1. – С. 165-176.
 48. Якубов Д. Ж., Гайбуллаев Ш. О. Влияние посттравматической хондропатии на функциональное состояние коленных суставов у спортсменов. *Uzbek journal of case reports*. 2022; 2 (1): 36-40. – 2022.
 49. угли, Н. З. Н., Шухратович, У. М., Хуршедовна, А. С. and Фаёзович, В. Ф. (2023) “Роль Ультразвука В Оценке Повреждения Мениска”, *Central Asian Journal of Medical and Natural Science*, 4(2), pp. 588-595. doi: 10.17605/OSF.IO/M5HZP.
 50. Жавланович, Я. Д., Амандуллаевич, А. Я., Зафаржонович, У. З., & Павловна, К. Т. (2023). Мультипараметрическая МРТ В Диагностике Рака Предстательной Железы. *Central Asian Journal of Medical and Natural Science*, 4(2), 577-587. <https://doi.org/10.17605/OSF.IO/MQDHP>
 51. угли, А.С.Н., Хамидович, Р.Ш. and Данабаевич, Ж.К. 2023. Кость При Остеоартрите: Визуализация. *Central Asian Journal of Medical and Natural Science*. 4, 3 (Jun. 2023), 895-905.
 52. Z., Umarkulov Z., Khakimov M. B., and Suvonov Z. K. 2023. “Ultrasound Diagnostics and Diapreutics of Focal Liquid Lesions of the Liver”. *Central*

- Asian Journal of Medical and Natural Science 4 (3), 986-94.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1607>.
53. N., Nurmurzayev Z., Abduqodirov Kh. M., and Akobirov M. T. 2023. "Transabdominal Ultrasound for Inflammatory and Tumoral Diseases Intestine: New Possibilities in Oral Contrasting With Polyethylene Glycol". Central Asian Journal of Medical and Natural Science 4 (3), 973-85.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1606>.
54. S., Usarov M., Turanov A. R., and Soqiev S. A. 2023. "Modern Clinical Capabilities of Minimally Invasive Manipulations under Ultrasound Control". Central Asian Journal of Medical and Natural Science 4 (3), 956-66.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1604>.
55. I., Davranov I., and Uteniyazova G. J. 2023. "Koronavirus Diagnostikasida O'pkani Ktsi: Qachon, Nima Uchun, Qanday Amalga Oshiriladi?". Central Asian Journal of Medical and Natural Science 4 (3), 947-55.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1602>.
56. P., Kim T., and Baymuratova A. C. 2023. "Fast Technology for Ultrasonic Diagnosis of Acute Coleculosis Cholecystitis". Central Asian Journal of Medical and Natural Science 4 (3), 940-46.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1601>.
57. A., Khamidov O., and Shodmanov F. J. 2023. "Computed Tomography and Magnetic Resonance Imaging Play an Important Role in Determining the Local Degree of Spread of Malignant Tumors in the Organ of Hearing". Central Asian Journal of Medical and Natural Science 4 (3), 929-39.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1600>.
58. O., Gaybullaev S., Fayzullayev S. A., and Khamrakulov J. D. 2023. "Cholangiocellular Cancer Topical Issues of Modern Ultrasound Diagnosis". Central Asian Journal of Medical and Natural Science 4 (3), 921-28.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1599>.
59. угли, Химматов Ислом Хайрулло, Сувонов Зуфар Кахрамон угли, and Умаркулов Забур Зафаржонович. 2023. "Визуализация Множественной Миеломы". Central Asian Journal of Medical and Natural Science 4 (3), 906-16.
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/1597>.
60. Gaybullaev S. O., Fayzullayev S. A., Khamrakulov J. D. Cholangiocellular Cancer Topical Issues of Modern Ultrasound Diagnosis //Central Asian Journal of Medical and Natural Science. – 2023. – Т. 4. – №. 3. – С. 921-928.
61. Alimdjaniyev, Rizayev Jasur, et al. "Start of Telemedicine in Uzbekistan. Technological Availability." Advances in Information Communication Technology and Computing: Proceedings of AICTC 2022. Singapore: Springer Nature Singapore, 2023. 35-41.
62. Khamidov O. A., Shodmanov F. J. Computed Tomography and Magnetic Resonance Imaging Play an Important Role in Determining the Local Degree of Spread of Malignant Tumors in the Organ of Hearing //Central Asian Journal of Medical and Natural Science. – 2023. – Т. 4. – №. 3. – С. 929-939.

63. Khamidov Obid Abdurakhmanovich, Gaybullaev Sherzod Obid ugli 2023. COMPARATIVE ANALYSIS OF CLINICAL AND VISUAL CHARACTERISTICS OF OSTEOMALACIA AND SPONDYLOARTHRITIS. Science and innovation. 3, 4 (May 2023), 22–35.
64. Khamidov Obid Abdurakhmanovich, Gaybullaev Sherzod Obid ugli 2023. COMPARATIVE ANALYSIS OF CLINICAL AND VISUAL CHARACTERISTICS OF OSTEOMALACIA AND SPONDYLOARTHRITIS. Science and innovation. 3, 4 (May 2023), 22–35.
65. Abdurakhmanovich, K. O. (2023). Options for diagnosing polycystic kidney disease. Innovation Scholar, 10(1), 32-41.
66. Abdurakhmanovich, K. O., & Javlanovich, Y. D. (2023). COMPARISON OF MRI WITH DIAGNOSTIC KNEE ARTHROSCOPY FOR EVALUATING MENISCAL TEARS. Zeta Repository, 4(04), 10-18.
67. Yakubov, D. J., & Pirimov, U. N. (2023). Vergleich der Ergebnisse von Ultraschall und MRT bei der Diagnose von Schäden am Meniskus des Kniegelenks. New Central Asian Science Journal, 6(5), 3-11.
68. Khamidov Obid Abdurakhmanovich and Gaybullaev Sherzod Obid ugli 2023. Telemedicine in oncology. Science and innovation. 3, 4 (Aug. 2023), 36–44.
69. Khamidov Obid Abdurakhmanovich, Gaybullaev Sherzod Obid ugli and Yakubov Doniyor Jhavlanovich 2023. Переход от мифа к реальности в электронном здравоохранении. Boffin Academy. 1, 1 (Sep. 2023), 100–114.
70. Gaybullaev Sh.O., Djurabekova A. T. and Khamidov O. A. 2023. MAGNETIC RESONANCE IMAGRAPHY AS A PREDICTION TOOL FOR ENCEPHALITIS IN CHILDREN. Boffin Academy. 1, 1 (Oct. 2023), 259–270.
71. Khamidov O. A. and Dalerova M.F. 2023. The role of the regional telemedicine center in the provision of medical care. Science and innovation. 3, 5 (Nov. 2023), 160–171.
72. Yakubov D.J. and Mirkhakimova F.M. 2023. Cerebral edema - possibilities of magnetic resonance imaging. Journal the Coryphaeus of Science. 5, 5 (Nov. 2023), 226–236.