

**DIAGNOSIS OF GALL BLADDER NEW TUMORS**

*Kim Tatyana Pavlovna,  
Eshmuminov Bakhrombek Bakhodir ugli  
Samarkand State Medical University,  
Samarkand, Uzbekistan*

**Abstract:** The article provides a review of the literature on modern diagnostics of gallbladder tumors. Neoplasms of the gallbladder are diverse in morphological forms and genesis. They can be benign or malignant. Gallbladder cancer is a rare tumor that is accompanied by cholecystitis and cholelithiasis; Benign neoplasms of the gallbladder, such as papilloma, adenoma and adenomyomatosis, are much more common. Risk factors for gastric cancer include cholelithiasis, abnormal pancreaticobiliary junction, and microcalcification of the mucosa. The prognosis for gallbladder cancer is unfavorable - the 5-year survival rate is 5% due to late detection of gallbladder cancer, in 80% of cases life expectancy is less than a year. Clinical manifestations of gallbladder cancer may resemble those of cholecystitis and cholelithiasis. Jaundice develops due to tumor growth into the bile ducts, compression of the bile ducts from the outside by a tumor in the liver or metastatic lymph nodes. Literature data summarized in this review characterize gallbladder neoplasms as a difficult disease to diagnose. A necessary condition for effective detection of tumors is to determine the capabilities of various diagnostic methods - ultrasound, X-ray computed tomography and magnetic resonance imaging.

**Key words:** gallbladder, gallbladder cancer, diagnosis, gallbladder neoplasms, gallbladder polyps.

In the countries of the European Union, the incidence of gallbladder and extrahepatic bile duct cancer is 3.2 and 5.4 cases per 100 thousand population per year among men and women, respectively [1]. GC is a rare tumor that is accompanied by cholecystitis and the formation of gallstones; Benign neoplasms of the gallbladder (GB), such as papilloma, adenoma and adenomyomatosis, are much more common. Risk factors for gastric cancer include cholelithiasis, abnormal pancreaticobiliary junction, and mucosal microcalcification. The tumor usually develops from the mucous membrane of the fundus or neck of the gallbladder, but due to rapid growth, it can be difficult to determine the original location of the tumor. Abundant lymphatic and venous outflow from the gallbladder causes early metastasis to regional lymph nodes, which is accompanied by cholestatic jaundice and dissemination. The tumor grows into the lumen of the gallbladder or beyond it, into the liver parenchyma. The prognosis for gastric cancer is unfavorable. It is reported that due to late detection of gastric cancer,

the 5-year survival rate of patients is 5%, in 80% of cases life expectancy does not exceed a year [2; 3]. Clinical manifestations of gastric cancer may be similar to those of cholecystitis and cholelithiasis. Jaundice develops due to tumor growth into the bile ducts or compression of the bile ducts from the outside by a tumor in the liver or metastatic lymph nodes.

### **GALLBLADDER CANCER**

At the patient's initial visit, an ultrasound examination of the liver and gallbladder is performed [4; 5]. New growths of the gallbladder appear as hyperechoic solid structures in the lumen of the gallbladder; The wall of the gallbladder is unevenly thickened, and the border between the gallbladder and the liver is unclear. At the same time, immobile bile sludge may have an ultrasound picture similar to that of neoplasms [6; 7]. Local or diffuse thickening of the gallbladder wall is a common, nonspecific ultrasound finding. Changes in the thickness of the gallbladder wall can be observed in the case of acute and chronic cholecystitis, benign and malignant tumors [8]. Accordingly, the differential diagnosis of gallbladder diseases is extremely difficult, especially when more than two types of different gallbladder formations are combined. Doppler color coding and contrast-enhanced ultrasound help determine blood flow in formations and distinguish it from sludge [9].

In the case of tumor growth beyond the serous membrane with spread to the liver parenchyma or other adjacent organs (stomach, duodenum or colon, pancreas, greater omentum, extrahepatic bile ducts), echograms reveal hypoechoic formations in the liver, which are difficult to differentiate from primary and metastatic ones neoplasms. The diagnostic accuracy of ultrasound in patients with gastric cancer was 62%, sensitivity - 23%, specificity - 91% [10]. Ultrasound is used to biopsy lesions if they have spread to the liver or if lymph node involvement is suspected.

The use of contrast agents during ultrasound allows one to visualize the diffuse branched distribution of vessels in gastric cancer, in contrast to the linear and diffuse distribution of vessels in benign neoplasms. RGB is characterized by early and long-term accumulation of contrast agent - up to 120 s with a specificity of 89% [9]. Contrast ultrasound can detect small polypoid formations, as well as assess tumor invasion in the liver and detect metastases [11].

The use of intraoperative ultrasound (IOUS) during interventions on the gallbladder increases the accuracy of determining the stage of the disease, the boundaries of resection, and the involvement of vascular and biliary structures. In gastric cancer, the accuracy of IOUS reached 100% compared to 66% for preoperative ultrasound [12].

Endoscopic ultrasound allows for differential diagnosis of polyps and gastric cancer, determining the depth of tumor penetration into the wall of the gallbladder, detecting enlarged regional lymph nodes and monitoring the biopsy. When a polypoid

formation is detected in the gallbladder, the presence of a hypoechoic structure serves as a prognostic factor for malignancy with a sensitivity and specificity of 90 and 89%, respectively. Polyps larger than 15 mm have an increased risk of malignancy [13].

In unclear cases or if ultrasound reveals a resectable tumor, X-ray computed tomography (X-ray CT), magnetic resonance imaging

(MRI) with magnetic resonance cholangiopancreatography and/or cholangiography provide additional information. CT and MRI are performed to clarify the stage and spread of the tumor with the determination of distant metastases and vascular invasion. Magnetic resonance cholangiopancreatography and cholangiography are used in cases of clinical jaundice and bile duct dilatation to determine the nature of strictures.

A comparison was made of X-ray CT and ultrasound methods in the diagnosis of gastric cancer with intravesical and infiltrative growth. The sensitivity of ultrasound in detecting the intravesical form of gastric cancer with and without gallstones was 63 and 91%, RCT - 80 and 100%, respectively. The sensitivity of ultrasound in determining the infiltrative form of gastric cancer with and without gallstones reached 12 and 25%, RCT - 71 and 75%, respectively.

Since thickening of the gallbladder wall is observed not only in gastric cancer, but also in benign diseases, such as chronic cholecystitis and adenomyomatosis of the gallbladder, difficulties arise in the differential diagnosis of malignant neoplasms and benign pathology using ultrasound, CT and MRI. Positron emission tomography helps differentiate between benign and malignant thickening of the gallbladder wall [15].

If the diagnosis of gastric cancer is established after cholecystectomy, a repeat, more radical operation is necessary. Moreover, in the case of stage Ia, a 100 percent 5-year survival rate can be achieved. In stages Ib, II and III, survival was significantly increased if extended cholecystectomy was performed with resection of IVB and V segments of the liver and lymphadenectomy in the area of the hepatoduodenal ligament. Chemotherapy and radiation therapy are ineffective.

### *BENIGN NEOPLASMS OF GB*

Most neoplasms of the gallbladder are benign. They develop from epithelial and non-epithelial structures present in the gallbladder. Adenoma and biliary papillomatosis develop from epithelial structures, and xanthogranulomatous cholecystitis, adenomyomatosis and cholesterol polyps develop from non-epithelial structures. Polypoid formations in the gallbladder or thickening of the gallbladder wall may be signs of malignancy. Meanwhile, the differential diagnosis should be carried out with benign formations, since in this case the clinical approach and prognosis differ significantly.

Adenoma of the gallbladder is detected after cholecystectomy in 0.5% of cases. Adenoma is usually asymptomatic and discovered incidentally. Degeneration of

adenoma is extremely rare. On ultrasound tomograms, an adenoma, as a rule, has the appearance of an intravesical polyp-like formation with a smoothed contour and a wide base, less often with a long stalk. If an adenoma is suspected, it is better to examine the patient in the left lateral position to visualize the pedicle of the adenoma. The wall of the gallbladder is not thickened - less than 3 mm. In case of wall thickening in the area of the adenoma, a malignant neoplasm should be excluded.

Adenoma is usually homogeneously hyperechoic, but if it grows it can become heterogeneous in structure. Adenoma is often accompanied by gallstone disease. With contrast ultrasound, during the early phase, a homogeneous sharp increase in the signal is determined in 78% of cases, and in the last phase, in 56% of cases, a moderate increase in the signal is detected.

With contrast CT, a gallbladder adenoma appears as a soft-tissue intravesical formation, iso- or hypo-intense compared to the liver [21]. On CT scans, unlike ultrasound scans, it is difficult to distinguish polyps from non-calcified stones.

Cholesterol polyps of the gallbladder make up about 50% of all polypoid formations of the gallbladder and do not become malignant. Cholesterol polyps can be single or multiple and are observed in any part of the gallbladder; their size is less than 10 mm. On ultrasound tomograms, small polyps look like hyperechoic nodules associated with the wall of the gallbladder, usually round in shape, without an acoustic shadow. Contrast contrast revealed a sharp increase in signal in 93% of formations during the early phase and a decrease in signal in 64% of formations in the last phase.

Often a stone without an acoustic shadow is difficult to distinguish from a cholesterol polyp due to the similar ultrasound pattern. Large cholesterol polyps are less echogenic than small ones, and endoscopic ultrasound can be used to differentiate them from adenoma and adenocarcinoma. Cholesterol polyps are difficult to visualize on X-ray CT images without contrast, since the intensity of the polyps and bile is similar. However, they are easily identified with contrast CT due to vascularity. On X-ray CT images, polyps often do not have a thin stalk, and in this case they are indistinguishable from stones or stagnant bile.

Xanthogranulomatous cholecystitis is a form of chronic cholecystitis that can mimic malignancy [26]. The mechanism of development of xanthogranulomatous cholecystitis has not been sufficiently studied, but it is known that prolonged inflammation leads to thickening of the wall of the gallbladder and the infiltrating process can spread to adjacent soft tissues, liver, colon or duodenum. Stones are present in most patients. In the future, perforation of the gallbladder may develop in places of ulceration of the mucous membrane or rupture of the Rokitansky-Aschoff sinuses. This leads to the formation of external and cholecystoduodenal fistulas, abscesses, and the development of inflammatory processes in the liver, intestines, and soft tissues. The Rokitansky-Aschoff sinuses are retractions of the mucous membrane of the gallbladder

between the muscle bundles of its wall; they can serve as a localization site for infectious agents.

Thickening of the gallbladder wall is a sign of xanthogranulomatous cholecystitis. Thickening may be limited or diffuse, and wall thickness varies from 3 to 25 mm, which is well determined by all imaging methods. The boundaries of the gallbladder wall and the boundaries of the liver may be unclear if the inflammatory process spreads.

On ultrasound tomograms, xanthogranulomatous cholecystitis can be visualized as hypoechoic formations within the thickened wall of the gallbladder. These hypoechoic formations represent foci of xanthogranulomatous inflammation. In addition, discontinuity of mucosal contours, fluid around the gallbladder, stones, and intrahepatic dilatation of the bile ducts may be detected.

With RCT, the described hypoechoic formations in the wall of the gallbladder appear as foci of reduced intensity. CT allows more effectively than ultrasound to diagnose the spread of the disease to adjacent tissues. Dilatation of the bile ducts may be caused by intraductal stones, lymphadenopathy of the hepatoduodenal ligament, or concomitant malignant processes in the gallbladder or in the ducts. Accordingly, preoperative differential diagnosis of gastric cancer and xanthogranulomatous cholecystitis is virtually impossible without a biopsy.

Adenomyomatous hyperplasia of the gallbladder is detected in 8% of cases after cholecystectomy and is characterized by hyperplasia of the muscular layer and proliferation of the epithelium with the formation of branched glandular structures and cystic extensions in the wall. In the literature, this pathology has been given many names: adenomyomatosis, adenomyoma, GB diverticulum, and cholecystitis with glandular proliferation.

There are three types of adenomyomatous hyperplasia: local, segmental and diffuse. The most common local variant is also known as adenomyoma, which appears on ultrasound as the formation of a heterogeneous cystic structure in the bottom of the gallbladder. The segmental variant is characterized by thickening of the wall of the gallbladder, usually in the body area, which leads to a change in the shape of the gallbladder (“hourglass”). The diffuse variant of adenomyomatous hyperplasia is characterized by diffuse thickening of the gallbladder wall with the development of intramural diverticula in the form of cysts.

Muscular hyperplasia is accompanied by invagination of the epithelium, thickening of bile, and the appearance of mucus or stones. Inflammatory and fibrotic changes can lead to metaplastic and subsequently to malignant transformation. Thus, adenomyomatous hyperplasia can be classified as a precancerous disease.

As a result of long-term adenomyomatous hyperplasia in the Rokitansky-Aschoff sinuses, bile sludge calcification occurs. Ultrasound tomograms show cholesterol deposits and stones. Ultrasound tomograms reveal local or diffuse thickening of the gallbladder wall. Narrowing of the lumen of the gallbladder can be noted in diffuse and segmental variants. Internal diverticula containing bile have an anechoic structure, and diverticula containing cholesterol or stones have an echogenic structure in the wall of the gallbladder. The sonographic sign of adenomyomatous hyperplasia is a V-shaped or comet-tail reverberation caused by small echogenic foci in the wall of the gallbladder. If an adenomyoma is detected, it is this sign that helps to distinguish it from neoplasia. With contrast, in 80% of cases, isointensity of ultrasound reflections is observed in the early phase and in all cases - hypointensity in the last phase. Local and diffuse thickening of the gallbladder wall, as well as formation in the bottom of the gallbladder, can be obvious on CT and MRI images, which facilitates the differential diagnosis from gastric cancer.

Thus, polypoid formations are usually detected by ultrasound and are observed in approximately 3% of gallstones; More often they are benign in nature. Cholesterol polyps are considered the most common - 53% of all benign polyps. Polyps larger than 10 mm in size pose a certain risk of malignancy; cancer occurs in them in 37-88% of cases, which is the basis for cholecystectomy with urgent histological examination.

Patients with polypoid lesions smaller than 10 mm should be actively monitored with periodic ultrasound. Particular attention should be paid to signs associated with a malignant process, such as thickening of the wall of the gallbladder, unclear borders with the liver, dilation of the bile ducts and enlargement of the lymph nodes of the hepatodrenal ligament. In the presence of a suspicious polyp or suspicious thickening of the gallbladder wall, endoscopic ultrasound may be useful for differential diagnosis and assessment of local tumor spread.

#### **Literature:**

1. 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>.
2. Abdurakhmanovich, K. O. (2023). Options for diagnosing polycystic kidney disease. *Innovation Scholar*, 10(1), 32-41.
3. Abdurakhmanovich, K. O., & Javlanovich, Y. D. (2023). COMPARISON OF MRI WITH DIAGNOSTIC KNEE ARTHROSCOPY FOR EVALUATING MENISCAL TEARS. *Zeta Repository*, 4(04), 10-18.
4. 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.

5. 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.
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. Alimdjanovich, 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.
8. 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.
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. 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. – T. 4. – №. 3. – C. 921-928.
11. 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.
12. 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.
13. 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>.
14. Kadirov J. F. et al. NEUROLOGICAL COMPLICATIONS OF AIDS //*Journal of new century innovations*. – 2022. – T. 10. – №. 5. – C. 174-180.
15. 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.
16. 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. – T. 4. – №. 3. – C. 929-939.
17. 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
18. 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

19. 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
20. 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
21. 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
22. 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
23. Khamidov OA, Normamatov AF, Yakubov DZh, Bazarova SA Respiratory computed tomography. Central Asian journal of medical end natural sciences. 2021;2(2):1-8
24. 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
25. 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
26. 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
27. 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
28. Khamidov Obid Abdurakhmanovich and Gaybullaev Sherzod Obid ugli 2023. Telemedicine in oncology. Science and innovation. 3, 4 (Aug. 2023), 36–44.
29. 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>
30. 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.
31. 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.

32. 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.
33. 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.
34. Khudayberdiyevich Z. S. et al. Possibilities and Prospects of Ultrasound Diagnostics in Rheumatology //Central Asian Journal of Medical and Natural Science. – 2022. – Т. 3. – №. 5. – С. 570-582.
35. Nurmurazayev Z.N.; Suvonov Z.K.; Khimmatov I.Kh. Ultrasound of the Abdominal Cavity. JTCOS 2022, 4, 89-97.
36. 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>.
37. 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.
38. 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>.
39. 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
40. Rustamov UKh, Urinboev ShB, Ametova AS Ultrasound diagnostics of ectopic pregnancy. Central Asian journal of medical end natural sciences. 2021;2(2):25-28
41. 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>.
42. Usarov M.Sh, Otakulov Z.Sh and Rakhmonkulov Sh. H. 2022. Contrast-enhanced ultrasound in the differential diagnosis of focalnodular hyperplasia and hepatocellular liver adenoma. Journal the Coryphaeus of Science. 4, 4 (Dec. 2022), 70–79.
43. 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.
44. 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. – C. 36.

45. 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.
46. 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.
47. 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.
48. 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.
49. Ахмедов Якуб Амандуллаевич; Гайбуллаев Шерзод Обид угли; Хамидова Зиёда Абдивахобовна. МРТ В СРАВНЕНИИ С ДИАГНОСТИЧЕСКОЙ АРТРОСКОПИЕЙ КОЛЕННОГО СУСТАВА ДЛЯ ОЦЕНКИ РАЗРЫВОВ МЕНИСКА. *Tadqiqotlar* 2023, 7, 105-115.
50. 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.
51. 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.
52. Нурмурзаев, З. Н., Жураев, К. Д., & Гайбуллаев, Ш. О. (2023). ТОНКОЙГОЛЬНАЯ АСПИРАЦИОННАЯ ЦИТОЛОГИЯ ПОД УЛЬТРАЗВУКОВЫМ КОНТРОЛЕМ В ДИАГНОСТИКЕ ЗАБРЮШИННЫХ ОБРАЗОВАНИЙ: ИССЛЕДОВАНИЕ 85 СЛУЧАЕВ. *Academic Research in Educational Sciences*, 4(4), 126–133.
53. 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.
54. угли, Химматов Ислон 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>.
55. 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.

56. 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.
57. 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.
58. 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.)
59. Хамидов, О. А., Жураев, К. Д., & Муминова, Ш. М. (2023). СОНОГРАФИЧЕСКАЯ ДИАГНОСТИКА ПНЕВМОТОРАКСА. *World scientific research journal*, 12(1), 51-59.
60. Ходжибеков М.Х., Хамидов О.А. Обоснование ультразвуковой диагностики повреждений внутрисуставных структур коленного сустава и их осложнений. 2020;3(31):526-529. (In Russ.)
61. Юсуфзода Х. и др. ОПТИМАЛЬНЫЕ МЕТОДЫ ДИАГНОСТИКИ СИНДРОМА МИРИЗЗИ //Yangi O'zbekiston talabalari axborotnomasi. – 2023. – Т. 1. – №. 2. – С. 21-25.
62. 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.
63. 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.