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Original Article

Benign Tumor Publication in One Year (2022): A Cross-Sectional Study

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Abstract

Introduction

A benign tumor is a form of abnormal cell proliferation that remains confined to its site of origin, grows slowly, does not spread to distant body parts, nor does it invade the surrounding local structures. In this study, we aim to evaluate and list the scientific publications regarding benign tumors in the year 2022.

Methods

A cross-sectional study was conducted, including the published papers on benign tumors in the year 2022. The data were collected online from the Google Scholar search engine and recorded in Microsoft Excel 2010. The extracted data were calculated and thoroughly re-evaluated, then presented as frequencies and percentages.

Results

A total of 17,007 medical studies were included in this report, with the brain having 3,450 (20.3%) studies, making it the organ with the most studies, whereas the hypopharyngeal portion of the throat had only one study and is, hence, the least studied one.

Conclusion

There is limited reporting and data available on benign tumors, and they are very scattered, leading to either a lack of or a misunderstanding of the burden they pose.

1. Introduction

Benign tumors are growths that remain localized within their primary location. They grow slowly without spreading to the surrounding local structures or distant parts of the body [1]. The cells in benign tumors appear normal and tend to stay confined to their site of origin, whereas in malignant tumors, the cells are not only abnormal but also grow uncontrollably [2]. The borders of benign tumors are generally well-defined and relatively smooth due to their slow growth [3]. Even though these lesions do not spread, they still impose a significant burden on the healthcare system. This is mainly due to their high frequency of occurrence and the need for surgical resection in certain cases [4]. Since these cells do not spread, they are generally not very

problematic. However, they can still lead to the compression of surrounding structures when they enlarge, resulting in various medical complications and pain [1]. Sometimes, a benign tumor, such as a pituitary adenoma, can grow to the point where it outgrows its own blood supply. This can be problematic, as it can lead to acute hemorrhagic infarction as well as swelling of the pituitary gland, subsequently causing visual defects like bitemporal hemianopia and ophthalmoplegia [5]. Benign tumors can also compress nervous system structures, such as the median nerve [6]. Regarding gender predominance, benign neoplasms affect both men and women equally. Despite occurring across a wide age range, they are most commonly observed in individuals aged 50 to 80 years [7]. As previously emphasized, the burden posed by these lesions is significant. In 2002 alone, it was estimated that 186,678 benign brain tumors were diagnosed worldwide [8].

Based on the thorough literature review we conducted, we have found that although these lesions can be problematic, data regarding them are incomplete and scattered. Therefore, we aim to conduct a study to collect the number of papers published in the year 2022 regarding benign tumors and categorize them based on body organs and the type of benign tumor

2. Methods

2.1. Study design

This study was a cross-sectional study that was conducted to gather all studies published on various types of benign tumors in humans. It spanned over a month, from September 11, 2023, to September 28, 2023.

2.2. Setting

In this study, the chosen search engine was "Google Scholar." We conducted a comprehensive search for all English-language publications on benign tumors using the following keywords: tumor, tumors, benign, non-cancerous, lump, lumps, neoplasm, neoplasms, mass, and masses. Additionally, we employed specific keywords tailored to different organs, such as the brain ("intracranial"), lung ("pulmonary"), esophageal ("esophagus"), liver ("hepatic"), gastric ("stomach"), eyes ("ocular"), naso-sinonasal, ear, oral, tongue, small intestine ("small bowel"), colorectal ("large intestine" or "large bowel"), pancreas ("pancreatic"), bladder ("vesical"), prostate ("prostatic"), endometrial ("uterus" or "uterine"), penile ("penis"), testicular ("testis"), thyroid, adrenal, skin ("cutaneous"), salivary gland, pituitary, parathyroid, bone marrow, bone ("skeletal"), nasopharynx, oropharynx, hypopharynx, supraglottic, glottis, subglottic, lymphatic system, cervical, ovarian, renal ("kidney"), breast, vulvar ("vaginal"), and anal ("anus").

2.3. Inclusion criteria

The study encompassed all articles published in 2022 on benign tumors and their various types.

2.4. Exclusion criteria

The exclusion criteria included articles with only abstracts available, non-English articles, pre-print articles (non-peer-reviewed), and published articles in predatory journals. Predatory journals were defined and identified based on Kscien's list [9].

2.5. Data analysis

Data were collected using printed forms from Google Scholar, then entered and summarized using Microsoft Excel 2010. Subsequently, the extracted data were organized and subjected to a thorough re-evaluation.

3. Results

A total of 17,007 medical studies were included in this study. Among all the organs, the brain had the highest number of studies, totaling 3,450 (20.3%), making it the most extensively studied organ. In contrast, the hypopharyngeal portion of the throat had only one study, making it the least studied organ. In total, the study covered 34 different organs, including each component of the throat separately.

Regarding the types of benign tumors, meningioma was the most common, with a total of 943 studies, accounting for 5.5% of the overall number of benign tumors. Oncocytoma, sebaceous adenoma, Hurtle cell adenoma, chondroblastoma, osteoblastoma, chondromyxoid fibromas, supraglottic inverted papilloma, mesonephric duct remnant, fat necrosis, breast papilloma, granular cell tumor, and adenoma of the appendix were among the least common, each having only one study associated with them.

Among the most frequently studied organs, it was found that meningiomas were the most common brain tumors, constituting 27.33% of brain tumor studies, while choroid plexus tumors were the least common in the brain, accounting for only 0.17%. The lung also had a significant number of studies; however, the majority (94.3%) of benign lung tumors were not classified. In the liver, hemangiomas were the most common benign tumor type, representing 7.11% of cases, while teratomas (10.52%) and angiomyolipoma (10.5%) were the most common benign tumor types in the ovary and kidney, respectively (table 1).

4. Discussion

A pathological disturbance in cell growth leading to abnormal cell proliferation is called a tumor. To be considered a benign tumor, the increasing number of tumor cells should remain confined to their original site, as opposed to the uncontrolled growth of abnormal cells seen in malignant tumors [2]. Benign tumors grow slowly with distinct borders and without invading the surrounding tissue or other parts of the body. This is in contrast to malignant tumors, which grow quickly with irregular borders and can invade both the surrounding structures and also

Table 1. Shows the number of studies published in 2022 categorized on the basis of organs and types of benign tumors.

Organs	No.	Types	No.	Percentage (%)
Brain Tumors	3,450	Meningioma	943	27.33%
		Craniopharyngioma	235	6.81%
		Schwannoma	331	9.59%
		Choroid Plexus Tumor	6	0.17%
		Others	1935	56.09%
Lung	1,790	Hamartomas	7	0.39%
		Cysts	79	4.41%
		Pulmonary adenomas	11	0.61%
			5	0.28%
		Papillomas	1688	94.30%
		Others		
Esophageal	337	Leiomyoma	23	6.82%
		Cysts	17	5.04%
		Esophageal webs & rings	12	3.56%
		Polyp	6	1.78%
		Others	279	82.79%
Liver	1,140	Hemangioma	81	7.11%
		Adenoma	61	5.35%
		Focal Nodular Hyperplasia	40	3.51%
		Others	959	84.12%
Gastric	757	Polyp	32	4.23%
		GIST	42	5.55%
		Lipoma	5	0.66%
		Others	678	89.56%
Nasal,Sinonasal	175	Inverted Papilloma	88	50.29%
		Hemangioma	10	5.71%
		Osteoma	3	1.71%
		Nasal Polyps	63	36.00%
		Others	9	5.14%
Ear	31	Adenoma	7	22.58%
		Osteomas	3	9.68%
		Others	21	67.74%
Oral	477	Warts	5	1.05%
		Apthous Ulcer	18	3.77%
		Herpes Labialis	13	2.73%
		Candidiasis (Thrush)	134	28.09%
		Others	307	64.36%
Tongue	58	Fibromas	3	5.17%
		Schwannoma	8	13.79%
		adenoma	2	3.45%
		Others	45	77.59%
Salivary Gland	162	Pleomorphic Adenoma	25	15.43%
		Warthin Tumor	13	8.02%
		Oncocytoma	1	0.62%
		Sebcaeous Adenoma	1	0.62%
		Others	122	75.31%
Ovarian	1,150	Teratomas	121	10.52%
		Fibromas	21	1.83%
		Cystadenomas	29	2.52%
		Others	979	85.13%
Renal	1,010	Renal Adenoma	15	1.49%
		Oncocytoma	45	1.30%
		Angiomyolipoma	106	3.07%
		Leiomyoma	3	0.09%
		Others	841	24.38%
Pituitary Adenoma	430	Nonfunctional Adenoma	7	1.63%
		Prolactinoma	74	17.21%
		ACTH producing Tumor	54	12.56%
		Growth Hormone Producing tumor	13	3.02%
		Others	282	65.58%
Thyroid	374	Thyroid follicler adenoma	8	2.14%
		Thyroid toxic adenoma	5	1.34%
		Hurthle cell adenoma	1	0.27%
		Thyroid cyst	27	7.22%
		Others	333	89.04%
Parathyroid	168	Parathyroid adenoma	146	86.90%
		Others	22	13.10%
Bone marrow	46	None	46	100.00%
Oropharynx	17	None	17	100.00%
Hypopharyngeal	1	None	1	100.00%
Nasopharynx	27	Sqaumous papiloma	2	7.41%
		Inverted papilloma	11	40.74%
		Others	14	51.85%
Glottis	3	Glottic neurofibroma	1	33.33%
		Others	2	66.66%
Bone	495	Osteochondromas	12	2.42%
		Chondroblastoma	1	0.20%
		Osteoid osteomas	5	1.01%
		Osteoblastomas	1	0.20%
		Gint cell tumors	43	8.69%
		Chondromyxoid fibromas	1	0.20%
		Non-ossifying tumor	2	0.40%
		Enchondroma	23	4.65%
		Unicameral bone cyst	4	0.81%
		Fibrous dysplasia	148	29.90%
		Others	255	51.52%

Table 1. Continued…

Organs	No.	Types	No.	Percentage (%)
Supraglottis	2	Supraglottic inverted papilloma	1	50%
		Others	1	50%
Cervix	139	Cervical polyp	9	6.47%
		Cervial squamous papilloma	3	2.16%
		Leiomyomas	29	20.86%
		Mesonephric duct remnant	1	0.72%
		Cervical endometriosis	6	4.32%
		Others	91	65.47%
Breast	839	Fibroadenoma	5	0.60%
		Fat necrosis	1	0.12%
		Papilloma	1	0.12%
		Cyst	4	0.48%
		Mastitis	3	0.36%
		Hyperplasia	4	0.48%
		Adenoma	2	0.24%
		Granular cell tumor	1	0.12%
		Others	21	2.50%
Anal Canal	161	Polyps	15	9.32%
		Adnexal Tumors	18	11.18%
		neuroendocrinoma	16	9.94%
		stromal	12	7.45%
		Others	100	62.11%
Skin	201	Cherry Angioma	2	1.00%
		Sebaceous Hyperplasia	6	2.99%
		Lipomas	3	1.49%
		Seborrheic Keratosis	36	17.91%
		Dermatofibroma	27	13.43%
		Others	127	63.18%
Prostate	624	Benign Prostatic Hyperplasia	607	97.28%
		Others	17	2.72%
Pancreas	548	insulinoma	173	31.57%
		mucinous cystic neoplasm	28	5.11%
		serous cystadenomas	3	0.55%
		Pancreatic Pseudocyst	63	11.50%
		Serous Cystic Neoplasm	3	0.55%
		Others	278	50.73%
Endometrial	175	Endometrial Hyperplasia	145	82.86%
		Endometrial Polyp	26	14.86%
		Others	4	2.29%
Penile	17	Penile Plaques	5	29.41%
		Others	12	70.59%
Testicular	265	Benign Teratoma	14	5.28%
		Benign Sex Cord Stromal Tumors	8	3.02%
		Others	243	91.70%
Vulvar	40	melanoma	17	42.50%
		fibroepithelial	6	15.00%
		Others	17	42.50%
Ovarian	765	Benign Teratomas	111	14.51%
		Fibromas	19	2.48%
		Cystadenomas	4	0.52%
		Others	630	82.35%
Appendix	51	Neuroendocrine	14	27.45%
		Mucinous neoplasm	7	13.73%
		Adenoma	1	1.96%
		Others	29	56.86%
Small intestine	73	Neuroendocrine	5	6.85%
		Lipoma	7	9.59%
		Others	61	83.56%
Bladder	295	Leiomyoma	17	5.76%
		Neuroendocrine	4	1.36%
		Others	271	91.86%
Colorectal	672	General polyps	216	32.14%
		Hyperplastic polyps	2	0.30%
		Adenoma	75	11.16%
		Others	293	43.60%

spread to other parts of the body, a process referred to as metastasis [1].

The absence of metastasis in benign tumors does not indicate a lack of complications, especially since the majority of benign tumors can cause complications by compressing surrounding structures, such as a lipoma compressing an adjacent peripheral nerve. Besides the neurological symptoms it may cause, a lipoma can also result in pain, necessitating surgical resection [10].

Although the cause of a benign tumor is often unknown, factors such as local trauma, injury, stress, diet, genetics, and environmental toxins have been associated with their growth [11]. Primary central nervous system and brain tumors occur more frequently in younger populations compared to other types of tumors, impacting the potential years of life lost by individuals [12]. Notably, among central nervous system tumors, benign brain meningioma is the most frequently reported in the United States [12] Interestingly, there appears to

be an increase in its incidence, particularly between 2004 and 2017 [13]. Asia, Europe, and Australia have also shown similar trends in the incidence rate of meningioma [14-16]. This high incidence of benign brain meningioma was also reflected in our study, where out of a total of 3,450 publications on benign brain tumors, 943 (27.33%) of them were about benign meningioma, making it the most commonly studied type of benign tumor in our research.

According to the American Association of Neurosurgical Surgeons, surgical resection offers the best chance of a cure for benign brain tumors, largely due to their well-defined borders, allowing for complete surgical removal [17].

Another organ with a substantial number of studies on benign tumors is the lung. In our study, we found a total of 1,790 studies published in 2022 regarding benign lung tumors or masses. Although the majority of the masses were not classified or further subdivided, cysts with 79 publications and pulmonary adenomas with 11 studies were the most common types of benign masses in the lung. Generally, pulmonary nodules are observed in approximately 1.6 million patients per year in the United States. As for malignancy, 95% of the pulmonary nodules identified are benign tumors, categorized as either small solid when less than 8 mm, large solid when larger than 8 mm, or subsolid [18]. In a study conducted at Mashhad University of Medical Sciences between 1981 and 2009, the mean age of patients with benign lung tumors was 51.69, with no gender predominance. Since the majority (78.1%) of them were asymptomatic, most benign lung tumors were diagnosed through routine radiography. Another useful diagnostic technique was found to be transbronchial lung biopsy, with thoracotomy and wedge resection as the treatment of choice [19].

One common type of benign tumor in females is benign ovarian tumors. According to Mimoun et al., between 14% and 18% of postmenopausal women and 7% of asymptomatic women of childbearing age are presumed to have benign ovarian cysts [20]. Other studies have found that endometrioma, dermoid cysts, and cysts of Morgani are commonly found in perimenopausal women, while serous cysts and ovarian fibroids are the most common benign ovarian tumors in postmenopausal women [21]. Our study similarly highlights benign ovarian tumors among the most frequently published benign tumors in 2022, with a total of 1,150 studies. Based on our review and as indicated in Table 1, teratomas were the most common benign ovarian tumors, with 121 studies, followed by cystadenoma with 29 studies.

Another type of benign tumor that appears to have an increasing incidence is benign liver tumors. Oldhafer et al. attribute this increase to the more frequent use of medical imaging, including ultrasonography [23]. According to their study, Hemangioma, Focal Nodular Hyperplasia, and Hepatocellular Adenoma are the most frequent types of benign liver tumors. Our study yielded similar results, with hemangiomas being the most common benign liver tumor, accounting for 7.11% of cases, followed by adenomas and focal nodular hyperplasia, with 61 and 40 studies, respectively.

Regarding renal tumors, our search found 1,010 studies, with most of them not identifying the specific type of benign renal tumor. Among the identified types, angiomyolipoma was the most common, with 106 studies, followed by oncocytoma with 45. Renal adenoma and leiomyoma were also observed, as listed in Table 1. Studies suggest an increased rate of detection of small renal tumors, largely due to the widespread use of cross-sectional imaging. Approximately 15% of renal tumors are found to be benign, mostly consisting of small-sized masses [30]. Out of 1,289 patients who underwent partial nephrectomy for presumed renal cell carcinoma, 240 (19.2%) actually had benign renal lesions [31]. Renal cancer is diagnosed in 65,000 new patients annually and results in over 13,000 deaths per year [32]. Due to the high mortality rate associated with kidney cancer and the increased incidence of low-stage tumors, active surveillance is now considered necessary for small renal masses, with surgery or thermal ablation being considered for treatment when required [33].

Breast cancer is one of the most common forms of cancer in women and can cause anxiety and distress in patients due to clinical breast changes [34]. In Germany, there are 70,000 new cases of breast cancer each year, making it the most common form of cancer in women. However, only 3% to 6% of clinical breast changes in women are found to be malignant, with the rest being benign [35]. Benign breast tumors were also among the most frequently published benign tumors in our study for the year 2022, with a total of 839 publications. Most of these studies did not specify the type of tumor. However, fibroadenoma, fat necrosis, papilloma, cyst, mastitis, hyperplasia, adenoma, and granular cell tumors were among the listed benign breast tumors. Core needle biopsy is the diagnostic modality of choice for determining tumor type, while less invasive techniques such as therapeutic vacuum biopsy, high-intensity focused ultrasound, and cryoablation are considered alternatives to open biopsy for surgical management [36].

5. Conclusion

There is a substantial gap in the scientific literature when it comes to benign tumors and their characteristics. The existing reports and data on benign tumors are quite sparse and scattered, which often results in either a lack of information or misconceptions about the impact and significance of these tumors.

Declarations

Conflicts of interest: The author(s) have no conflicts of interest to disclose.

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References

1. Amisha, Patel A. Benign vs malignant tumors. JAMA oncology. 2020;6(9):1488-90. doi:10.1001/jamaoncol.2020.2592
2. Zana H. Mahmood, Fenk M. Mohemed, Binaiy N. Fatih, Abdullah A. Qadir and Shalaw H. Abdalla. Cancer publications in one year (2022); a cross-sectional study. Barw Medical Journal. 2023;1(2). doi:10.58742/bmj.v1i2.30
3. White SC, Pharoah MJ. Oral radiology: principles and interpretation. Seventh. St. Louis, Missouri: Elsevier; 2014. ISBN:978-0-323-09633-1. DOI: N/A
4. Braem C, Declercq J, Van de Ven W. Molecular biology of benign tumours. InInternational Congress Series 2005 (Vol. 1279, pp. 168-169). doi:10.1016/j.ics.2004.12.062
5. Yoshihara MK, Lui F. Neuroanatomy, Bitemporal Hemianopsia. InStatPearls [Internet] 2023. StatPearls Publishing. DOI: N/A
6. Natroshvili T, Peperkamp K, Malyar MA, Wijnberg D, Heine EP, Walbeehm ET. Rare Tumors Causing Median Nerve Compression in Adults—A Narrative Review. Archives of Plastic Surgery. 2022;49(05):656-62. doi:10.1055/s-0042-1756345
7. Gore RM, Levine MS. High Yield Imaging Gastrointestinal E-Book. Elsevier Health Sciences; 2010. ISBN:978-1-4160-5544-0
8. McCarthy BJ, Schellinger KA, Propp JM, Kruchko C, Malmer B. A case for the worldwide collection of primary benign brain tumors. Neuroepidemiology. 2009;33(3):268-75.doi:10.1159/000230808
9. Muhialdeen AS, Ahmed JO, Baba HO, Abdullah IY, Hassan HA, Najar KA, et al. Kscien's List; A New Strategy to Discourage Predatory Journals and Publishers (Second Version). Barw Medical Journal. 2023; 1(1):30-32. doi:10.58742/bmj.v1i1.17.
10. 10.Flores LP, Carneiro JZ. Peripheral nerve compression secondary to adjacent lipomas. Surgical neurology. 2007;67(3):258-62. doi:10.1016/j.surneu.2006.06.052
11. Stuart A. Benign Tumors: Types, Causes, and Treatments [Internet]. WebMD. Available from: https://www.webmd.com/a-to-z-guides/benign-tumors-causes-treatments#:~:text=Treatment%20of%20Benign%20Tumors
12. Wanner M, Rohrmann S, Korol D, Shenglia N, Gigineishvili T, Gigineishvili D. Geographical variation in malignant and benign/borderline brain and CNS tumor incidence: a comparison between a high-income and a middle-income country. Journal of neuro-oncology. 2020; 149:273-82. doi:10.1007/s11060-020-03595-5
13. Bhala S, Stewart DR, Kennerley V, Petkov VI, Rosenberg PS, Best AF. Incidence of benign meningiomas in the United States: current and future trends. JNCI Cancer Spectrum. 2021;5(3): pkab035. doi:10.1093/jncics/pkab035
14. Nakamura H, Makino K, Yano S, Kuratsu JI, Kumamoto Brain Tumor Research Group. Epidemiological study of primary intracranial tumors: a regional survey in Kumamoto prefecture in southern Japan—20-year study. International journal of clinical oncology. 2011; 16:314-21. doi:10.1007/s10147-010-0178-y
15. Cea-Soriano L, Wallander MA, García Rodríguez LA. Epidemiology of meningioma in the United Kingdom. Neuroepidemiology. 2012;39(1):27-34. doi:10.1159/000338081
16. 16.Dobes M, Khurana VG, Shadbolt B, Jain S, Smith SF, Smee R et al. Increasing incidence of glioblastoma multiforme and meningioma, and decreasing incidence of Schwannoma (2000–2008): findings of a multicenter Australian study. Surgical neurology international. 2011;2. doi:10.4103/2152-7806.90696
17. Meningiomas – Classifications, Risk Factors, Diagnosis and Treatment [Internet]. www.aans.org. Available from: https://www.aans.org/en/Patients/Neurosurgical-Conditions-and-Treatments/Meningiomas
18. 18.Mazzone PJ, Lam L. Evaluating the patient with a pulmonary nodule: a review. Jama. 2022; 327(3):264-73. doi:10.1001/jama.2021.24287
19. 19.Bagheri R, Haghi SZ, Dalouee MN, Nasiri Z. Evaluation of the results of surgery treatment in patients with benign lung tumors. Lung India: Official Organ of Indian Chest Society. 2015;32(1):29. doi:10.4103/0970-2113.148436
20. Mimoun C, Fritel X, Fauconnier A, Deffieux X, Dumont A, Huchon C. Epidemiology of presumed benign ovarian tumors. Journal de gynecologie, obstetrique et biologie de la reproduction. 2013 ; 42(8) :722-9. doi:10.1016/j.jgyn.2013.09.027
21. 21.Matalliotakis M, Matalliotaki C, Krithinakis K, Laliotis A, Kapetanios G, Tsakiridis I, et al. Anatomic Distribution of Benign Ovarian Tumors in Perimenopausal and Postmenopausal Women. Cureus. 2023;15(1). doi:10.7759/cureus.34059
22. 22.Brun JL, Fritel X, Aubard Y, Borghese B, Bourdel N, Chabbert-Buffet N, et al. Management of presumed benign ovarian tumors: updated French guidelines. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2014; 183:52-8. doi:10.1016/j.ejogrb.2014.10.012
23. Oldhafer KJ, Habbel V, Horling K, Makridis G, Wagner KC. Benign liver tumors. Visceral medicine. 2020;36(4):292-303. doi:10.1159/000509145
24. 24.Mergo PJ, Ros PR. Benign lesions of the liver. Radiologic Clinics of North America. 1998;36(2):319-31. doi:10.1016/S0033-8389(05)70025-7
25. Bajenaru N, Balaban V, Săvulescu F, Campeanu I, Patrascu T. Hepatic hemangioma-review. Journal of medicine and life. 2015;8(Spec Issue):4. DOI: N/A
26. Giannitrapani L, Soresi M, La Spada E, Cervello M, D'alessandro N, Montalto G. Sex hormones and risk of liver tumor. Annals of the New York Academy of Sciences. 2006;1089(1):228-36. doi:10.1196/annals.1386.044
27. Rooks JB, Ory HW, Ishak KG, Strauss LT, Greenspan JR, Hill AP, Tyler CW. Epidemiology of hepatocellular adenoma: the role of oral contraceptive use. Jama. 1979;242(7):644-8. doi:10.1001/jama.1979.03300070040020
28. Liu Q, Liu F, Ding J, Wei Y, Li B. Surgical outcomes and quality of life between laparoscopic and open approach for hepatic hemangioma: a propensity score matching analysis. Medicine. 2019;98(6). doi:10.1097/MD.0000000000014485
29. Russo P, Uzzo RG, Lowrance WT, Asnis-Alibozek A, LaFrance ND, Libertino JA, et al. Incidence of benign versus malignant renal tumors in selected studies. Journal of Clinical Oncology. 2012;30(5_suppl):357-. doi:10.1200/jco.2012.30.5_suppl.357
30. Vijay V, Vokshi FH, Smigelski M, Nagpal S, Huang WC. Incidence of Benign Renal Masses in a Contemporary Cohort of Patients Receiving Partial Nephrectomy for Presumed Renal Cell Carcinoma. Clinical Genitourinary Cancer. 2023;21(3):e114-8. doi:10.1016/j.clgc.2022.11.006
31. American Cancer Society. Cancer Facts &Figures. 2014. https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2014.html
32. Pierorazio PM, Johnson MH, Patel HD, Sozio SM, Sharma R, Iyoha E, Bass EB, Allaf ME. Management of renal masses and localized renal cancer [Internet]. DOI: N/A
33. Gressner AM, Gressner OA. Robert Koch-Institut. InLexikon der Medizinischen Laboratoriumsdiagnostik 2019 (pp. 2078-2079). Berlin, Heidelberg: Springer Berlin Heidelberg.doi:10.1007/978-3-662-48986-4_2709
34. Stachs A, Stubert J, Reimer T, Hartmann S. Benign breast disease in women. Deutsches Ärzteblatt International. 2019;116(33-34):565. doi:10.3238/arztebl.2019.0565
35. Paepke S, Metz S, Brea Salvago A, Ohlinger R. Benign breast tumours-diagnosis and management. Breast Care. 2018;13(6):403-12. doi:10.1159/000495919.
36. Łukasiewicz E, Ziemiecka A, Jakubowski W, Vojinovic J, Bogucevska M, Dobruch-Sobczak K. Fine-needle versus core-needle biopsy–which one to choose in preoperative assessment of focal lesions in the breasts? Literature review. Journal of ultrasonography. 2017;17(71):267-74. doi:15557/JoU.2017.0039