Original Article

Adnexal Masses in Adolescents and Young Women; An Analysis Of 56 Clinical Cases

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Abstract

Background; Epidemiology and histopathology of adnexal masses in adolescents and young girls is different from adult and elderly women. The majority of masses are benign in nature, warranting careful fertility preserving surgical treatment plan in young age different from the adult population.

Objective: To identify the prevalence, clinical presentation, and distribution of various histological subtypes of ovarian tumors in adolescents and young women and secondarily, to evaluate the surgical management with reference to ovarian sparing procedures.

Methodology: A retrospective, descriptive study was conducted in Obs/Gynae dept of Benazir Bhutto Hospital, Rawalpindi from January 2018-December 2019. Medical records of included patients were reviewed for age, clinical presentation, size/ site of adnexal mass, family history, tumor markers, imaging techniques, histological report, and final treatment. Data was analyzed using SPSS version 22. Quantitative data is measured in Mean/ SD and Qualitative data expressed as Frequency/Percentage.

Results: Total cases reviewed in the study period were n=56 (prevalence; 2.8%). The mean age was 25.6 yrs. Lower abdominal pain was the commonest presenting symptom (36%) followed by menstrual abnormalities (30%) and dysmenorrhea (11%). Mean tumor size was 9.2cm; Unilateral tumor in 89% and bilateral in 11%. Tumor markers were normal in 58%. Raised were; Ca-125 (20%), LDH (11%), Ca-125 + LDH (4%), HCG (2%), HCG+ LDH (5%). Five patients got LAMA, 04 got medical treatment and 47 received surgical treatment. The majority of tumors (98%) were benign and of surface epithelial origin (69%). The commonest histological type of tumor in adolescent girls was simple follicular cyst in 43% (3/7) and in young women, it was serous cyst adenoma 30% (12/40).

Conclusion: Adnexal masses are common in adolescents and young females. They have wide spectrum of clinical presentation and histological subtype varies according to age. As the majority is benign, ovarian sparing surgery should be offered to young women.

Key words: Adnexal mass, Ovarian mass, Adolescents, Reproductive women.

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Introduction

Adnexal masses include masses originating from fallopian tubes, ovaries, and adjacent viscera. These masses are uncommon in adolescents, the incidence being 2.6/100,000 girls/yr.[1] However this pathology is quite common in young women of reproductive age. The exact incidence of adnexal masses in the general population is difficult to determine as the majority are asymptomatic and under diagnosed.[2] Adnexal masses are found in women of all age groups, and age independently affects the etiology, frequency, histological type, the malignant potential of a tumor and their management.[3,4] Ovarian tumors have a wide spectrum of clinical presentation; they can be asymptomatic at one end of spectrum when they are diagnosed incidentally; or they can present with acute or chronic abdominal pain, various pressure effects or secondary hormonal symptoms.[5] Majority of tumors in young patients are benign[3,6] and must be differentiated from malignant one as this differentiation affects the management plan especially when conservation of fertility is required.[2]

Authorship Contribution: [1]Study design, manuscript writing and methodology, [2]Analysis of data and interpretation of results, [3,4]Literature review, Active participation in active methodology [5,6]Analysis of data and interpretation of results

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Initial evaluation of an adnexal mass requires tumor markers as well as Transvaginal ultrasonography, the latter being the single most effective way of evaluating an ovarian mass.[3,7] While computed tomography(CT), magnetic resonance imaging (MRI), and positron emission tomography (PET)) should be avoided on the first assessment of adnexal masses.[2]

Index study was carried out to determine the prevalence, clinical presentation, and distribution of various histological subtypes of ovarian tumors in adolescents and young women and secondarily, to evaluate the surgical management with reference to ovarian (fertility) sparing procedures. Our results will further help in establishing differential diagnosis and treatment plan of ovarian masses in young females.

Methodology

After approval from the institutional ethical committee a retrospective, descriptive Chart Review (RCR) study was conducted in Obstet & Gynae dept of Benazir Bhutto Hospital, Rawalpindi for two yrs duration from January 2018 to December 2019.

Medical records of all patients up to 30 yrs of age including adolescent girls and treated for adnexal mass in the department for the study period were retrieved and reviewed for main outcome measures like; age, clinical presentation, size/ site of tumor, family history and level of tumor markers, imaging techniques done, histological subtypes and final treatment especially the surgical management with reference to ovarian sparing procedures.

Statistical Analysis; Data was collected on a specially designed proforma and analyzed by SPSS version 22. Quantitative data was expressed in Mean/ SD and Qualitative data as Frequency and Percentage.

Results

During the study period, a total of n=56 cases of adnexal masses were retrieved and reviewed, giving a prevalence of 2.8%. Adolescent patients (10-19 yrs) were 08 and young women (20-30 yrs) were 48. The mean age of patients was 25.6 yrs; the range being 12-30 yrs (Figure-1).

Clinical presentation was quite diverse; lower abdominal pain was the commonest symptom 36% (Figure-2). Mean tumor size was 9.2cm; <10cm was in 64% (n=36), 10-20 cm in 34% (n=19) and >20 cm size in 02% (n=01). Tumors were Unilateral in 89% (n=50) and bilateral in 11% (06) cases.

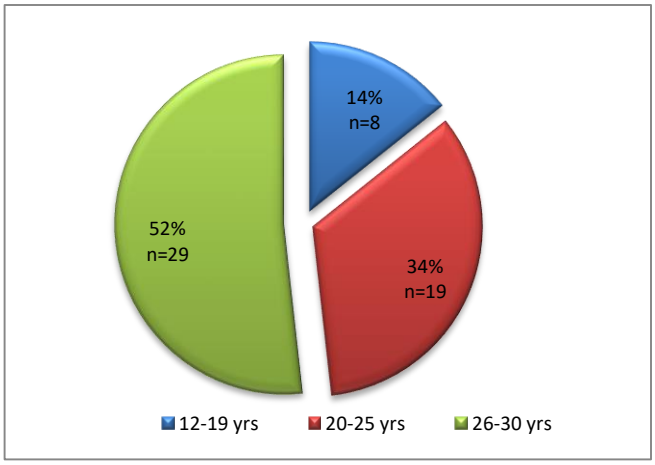

Figure-1. Age Distribution

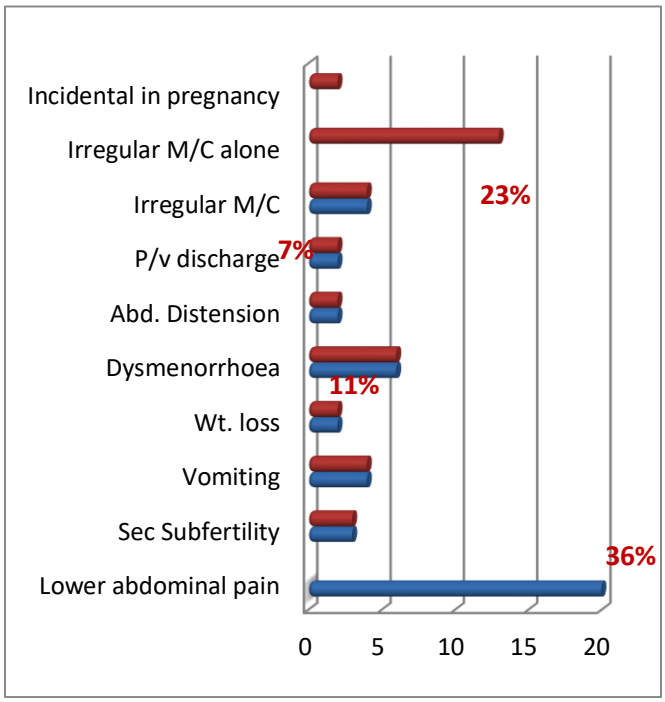

Figure 2. Clinical Presentation

Tumor markers were found to be normal in 58%. While abnormally raised levels were seen as; Carcinoma Antigen (CA-125) in 20%, Lactate dehydrogenase (LDH) in 11%, CA-125 + LDH in 4%, β-human chorionic gonadotropin (β-HCG) alone in 2% and HCG+ LDH both in 5% cases.

As far as clinical management was concerned; 05 patients left against medical advice (LAMA), 04 were given medical treatment in lieu of functional/haemorrhagic ovarian cyst, and 47 received some sort of surgical treatment (Figure-3).

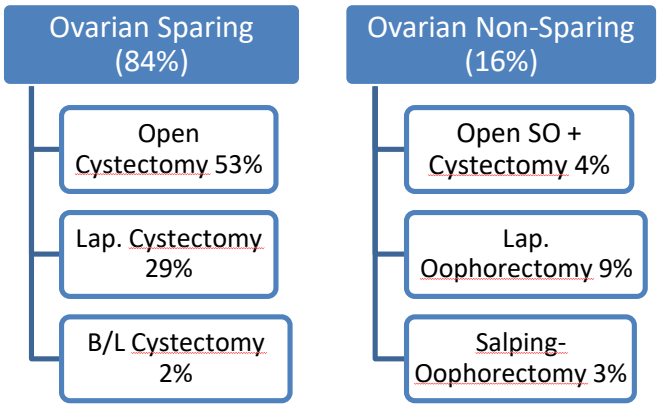

Figure 3. Surgical Treatment

The majority of tumors (98%, 4+46/51) were benign, only 01 (2%) borderline and no malignancy was found. On Post-operative histopathology surface epithelial tumors were 69%, germ cell tumors 21%, other tumors/tumor like lesions were 10%, and no sex cord tumor was found (Figyre-4). The commonest histological subtype of tumor in adolescent girls was found to be simple follicular cysts 43% (3/7) (Figyre-5) while in young women it was serous cyst adenoma 30% (12/40) (Figure-6).

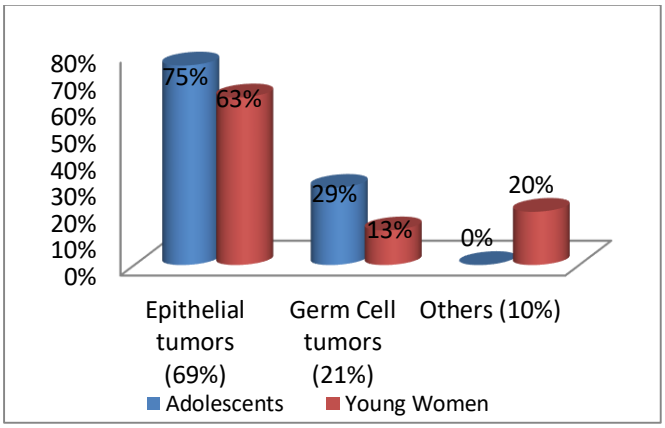

Figure 4. Ovarian tumors according to origin

Discussion

The adnexal masses are a common pelvic pathology in young women. These masses can originate as functional or physiological cysts, inflammatory or endometriotic mass and benign or malignant tumor.[3] The distribution of neoplasms in the pediatric population is different from adults. As age affects not only the histological subtype but also the malignancy

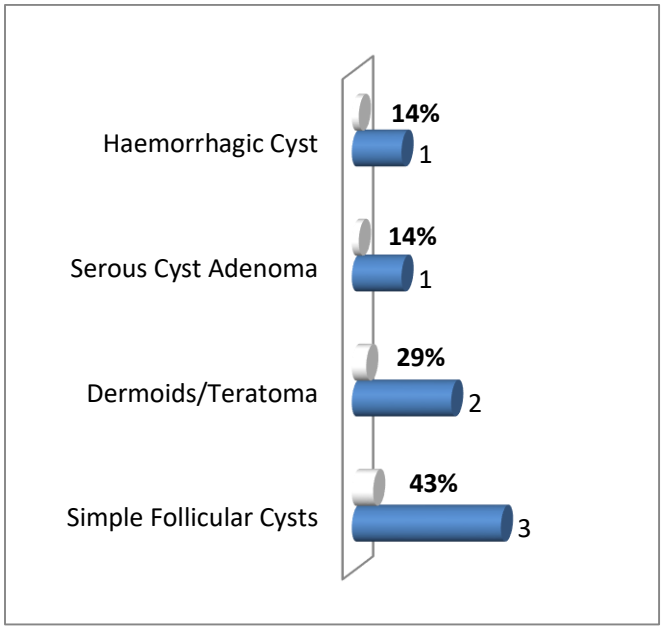

Figure 5. Histological type in adolescents

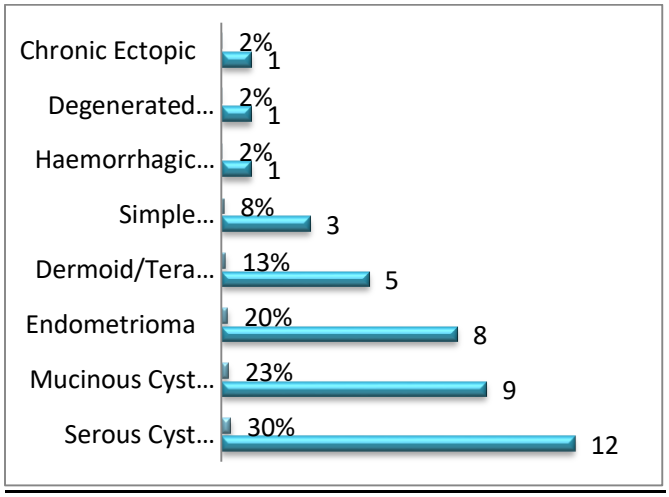

Figure 6. Histological types in young women

the potential of an adnexal mass, this is quite significant in pre-surgical risk evaluation.[3,4] In the present study we highlighted the clinicopathologic characteristics and management plans in young girls and women with adnexal mass.

A total of 56 cases of adnexal masses were managed in the study period giving a prevalence of 2.8%. Multiple studies[6,8-10] have been done to determine the prevalence of histological ovarian tumors in different age groups. The maximum incidence of ovarian tumors has shown to be in the age group 15 – 30 yrs.[6,11,12] In our study age range was 12-30 yrs giving a mean age of 25.6 yrs. This is consistent with another study where median age was 30yrs.[4] In a few other studies[8-10] focusing upon paediatric and adolescent age group only, the median age was 15.5 yrs to 17.5yrs. An

Indian study[13] reported benign neoplasms to be common in 3rd to 5th decade and malignant neoplasms in the 5th decade. In a study from Nepal[14] surface epithelial tumors were more frequently observed after 30 years of age, germ cell tumors between 20 to 30 years of age and sex cord tumors only in the 41 – 60 the age group.

Ovarian tumors are known to have diverse clinical presentations. They can be asymptomatic or present with chronic/acute abdominal pain. Like few other studies,[7,8,10] chronic lower abdominal pain was the commonest symptom (36%) in our study, followed by different menstrual abnormalities (30%) and dysmenorrhoe (11%). This is also comparable with results of another study [9] reporting abdominal pain (39.5%), menstrual disorder (31.1%), abdominal swelling (5.4%). Two women (3.5%) in our study were asymptomatic and had incidental diagnosis during antenatal ultrasound. Less frequently were seen secondary symptoms of nausea, vomiting and weight loss.

The mean tumor size was 9.2cm comparable to 9.0 ± 5.7 cm seen in Zhang study[9]; while other studies reported 14cm and 16.6 cm.[7,8] In majority of our cases the tumor was Unilateral (89%).

Tumor markers like; β-HCG, alpha fetoprotein (AFP), LDH and CA-125, are recommended to be done in patients with adnexal masses.[5] An elevated level of CA-125 is associated with inflammatory lesions and epithelial ovarian malignancies. In cases where an epithelial malignancy is considered, chorioembryonic antigen and CA-19-9 levels should also be done. In our study various tumor markers done were found to be normal in the majority of cases (58%), however CA-125 level was raised in 20% of cases. In studies focusing upon adolescent age group only, this figure was quite high i.e, 78.5%,[7] 54% [8] and 41.67%.[10] Increased LDH occurs with dysgerminomas, in our study LDH alone was raised in 11% while CA-125 and LDH both in 4% cases. This is comparable to 14% in another study.[9] Elevation of β-HCG occurs in pregnancy, ovarian carcinomas, germ-cell tumors, and embryonal cell carcinomas. In our study β-HCG alone was elevated in 2% and in combination with LDH, in 5% cases.

Pelvic Ultrasound was performed in all cases to distinguish simple cysts from solid and complex masses, to assess their vascularity and to identify the presence of free fluid in the abdomen. CT or MRI was done only in selected cases while further evaluating the complex masses or looking for metastasis in suspected cases of malignancy.

Multiple local and international studies have supported the benign nature for the majority of ovarian tumors.[6,15,16] Nevertheless, <1% risk of malignancy have been reported in case of simple cysts.[17] In our study 98% (50/51) tumors were benign and 2% (01/51) borderline. This is comparable to 15-30 yrs age group of Khan's study[6] reporting 84.48% benign tumors, 1.72% borderline but 13.79% malignant tumor. No malignancy was found in our study. This is in sharp contrast to another local study[18] where all ovarian tumors found in adolescent age group of 10 – 16 yrs were malignant.

Ovarian tumors can arise from any component of ovary like; surface epithelium, germ cells, stroma including sex cords and can either be secondary or metastatic ovarian tumors. Epithelial tumors are most common and sex cord stromal tumors are least common in all age groups.[6,16] In our study epithelial tumors were 69%, germ cell tumors 21%, other tumors/tumor like lesions were 10%, and no sex cord tumor was found. Comparing with compatible age group of Khan's study [6] epithelial tumors were found in 81.03%, germ cell tumors 17.24% and sex cord stromal tumors in 1.72% cases. The same results with a preponderance of surface epithelial tumors and scarcity of sex cord stromal tumors have been reported in another study from Pakistan[15] and few studies from India.[11,12,14] A study from Netherland[4] also reported surface epithelial tumors as 35.1%, germ cell tumors 29.8%, other cysts/tumor/tumor like lesions 32.8%, while sex cord stromal tumors as quite rare (2.3%).

In the age compatible group of Khan's study[6] the serous tumors were the most common (58.6%), followed by mucinous (17.2%) and teratomas (12%). This is comparable to our study wherein young women the commonest histological subtype of tumor was serous cyst adenoma (30%) followed by mucinous cyst adenoma (23%), endometrioma (20%) and Dermoids/teratoma (13%) while simple follicular cysts were only in 8% cases. This pattern is also consistent with few other studies from Pakistan[19] as well as other parts of the world.[14,16,18] In the present study the commonest mass found among adolescent girls was simple follicular cysts (43%) followed by Dermoids/teratoma (29%) and serous cyst adenoma (14%). While in a study by Chidress[8] 28.57% were

serous tumors and 71.43% were of mucinous histology in adolescent patients. Differences in results of various studies could be due to ethnicity, sample size and sampling technique.

As far as management of these masses was concerned, our 05 patients left the hospital during evaluation, 04 got medical treatment for functional cysts, while the remaining 47 patients underwent some sort of surgical treatment. As majority of ovarian tumors in the young age group are benign therefore conservative surgery with ovarian tissue sparing approach must be preferred.[8-10] The endometrioma can occur in up to 40% of adolescents and Laparoscopic cystectomy with ovarian preservation is the treatment of choice.[20] Benign mature cystic teratoma is the most common ovarian tumor in children and adolescents [7,9,21] and should be removed with ovarian conservation. Even malignant germ cell tumors can allow conservative management.[22] Majority of our patients (84%) had fertility preserving/ovarian sparing surgery including 55% open cystectomies and 29% laparoscopic one. While in 16% of cases unilateral oophorectomy or salpingo-ophorectomy (USO), had to be done. In other studies all patients had fertility-preserving surgery: in one study 36% had laparoscopic cystectomy, and 64% had laparotomy and USO[8] while in another study these figure were 66.67% and 33.33% respectively.[10] The earlier these cases are diagnosed, the better are the chances for fertility preservation surgery, demanding public awareness about these tumors in the young population.

Conclusion

Adnexal masses are common in adolescents and young females. They have wide spectrum of clinical presentation and histological subtype varies according to age. In young age the commonest tumors are surface epithelial tumors followed by germ cell tumors. The commonest histological subtype is of serous cystadenoma. As the majority is of benign tumors, these must be differentiated from malignant tumors so that ovarian sparing surgery can be offered to young patients to conserve fertility.

References

1. Book. Zaneto U, Downey G. Benign Tumours of the Ovary. In: Shaw RW, Lusely D, Monga A. Gynaecology. 4th edition. Eidenburgh, Churchill Livingstone Elsevier; 2011.P.668-76.
2. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins- Gynecology. Practice Bulletin No. 174: evaluation and management of adnexal masses. Obstet Gynecol. 2016;128(5):e210-26. doi: 10.1097/ AOG.0000000000001768
3. Carvalho JP, Moretti-Marques R, Silva Filho AL. Adnexal mass: diagnosis and management. Febrasgo Position Statement.2020. DOI: https://doi.org/10.1055/s-0040-1715547
4. Hermens AJ, Kluivers KB, Janssen LM, Siebers AG, Wijnen MH, Bulten J, et al. Adnexal masses in children, adolescents and women of reproductive age in the Netherlands: A nationwide population-based cohort study. Gynecol Oncol 2016; 143(1): 93-97. http://dx.doi.org/10.1016/j.ygyno.2016.07.096
5. Kelleher CM, Goldstein AM. Adnexal Masses in Children and Adolescents. Clinical Obstetrics and Gynecology 2015; 58(1): 76-92.
6. Khan MA, Afzal S, Saeed H, Usman H, Ali R, Khan MZ, et al. Frequency of Ovarian Tumors According To WHO Histological Classification And Their Association to Age at Diagnosis. Annals 2017; 23(2): 206-13.
7. Luzak J, Baglaj M. Selecting treatment method for ovarian masses in children; 24 years of experience. Journal of Ovarian Research 2017;10:59.DOI 10.1186/s13048-017-0353-0
8. Chidress KJ, Mohan N, Muscal JA, Dietrich JE, Venkatramani R. Borderline Ovarian Tumor in the Pediatric and Adolescent Population: A Case Series and Literature Review. J Pediatr Adolesc Gynecol. 2018;31(1):48-54. doi: 10.1016/j.jpag.2017.09.001.
9. Zhang M, Jiang W, Li G, Xu C. Ovarian masses in children and adolescents - an analysis of 521 clinical cases. J Pediatr Adolesc Gynecol 2014;27(3):e73-7. doi: 10.1016/j.jpag.2013.07.007.
10. Xu M, Wang B, Shi Y. Borderline ovarian tumor in the pediatric and adolescent population: a clinopathologic analysis of fourteen cases. Int J Clin Exp Pathol. 2020;13(5):1053-59.
11. Makwana HH, Maru AM, Lakum NR, Agnihotri AS, Trivedi NJ, Joshi JR. Relative Frequency and Histopathological Pattern of Ovarian Masses. Int J Med Sci Public Health, 2014; 3 (1): 81-84.
12. Nayak V, Sreelatha S, Vani BR, Shobarani S. Clinicopathological Study of Ovarian Tumours. Journal of Evolution of Medical and Dental Sciences, 2014; 3 (53): 12230-33.
13. Modi D, Rathod GB, Delwadia KN, Goswami HM. Histopathological pattern of neoplastic ovarian lesions. IAIM. 2016; 3 (1): 51-57.
14. Maharjan S. Clinicomorphological Study of Ovarian Lesions. JCMC. 2013; 3 (6): 17-24.
15. Khan MM, Sharif N, Ahmad S. Morphological Spectrum of Mature Ovarian Teratoma. Gomal J Med Sci. 2014; 12 (9): 76-80.
16. Abdullah LS, Bondagji NS. Histopathological pattern of ovarian neoplasms and their age distribution in the western region of Saudi Arabia. Saudi Med J. 2012; 33 (1): 61-65.
17. Valentin L, Ameye L, Franchi D, Guerriero S, Jurkovic D, Savelli L, Fischerova D, et al. Risk of malignancy in unilocular cysts: a study of 1148 adnexal masses classified as unilocular cysts at transvaginal ultrasound and review of the literature. Ultrasound Obstet Gynecol. 2013;41: 80–89.
18. Saeed M, Rana T. This is High Time to Look into Peripubertal Ovarian Tumors. J Annals of KEMU, 2010; 16 (3): 215-19.
19. Iqbal J, Aurangzaib, Naseem A, Shahid A. Pattern of Ovarian Pathologies. J Rawal Med Coll. 2013; 17 (1): 113-15.
20. Ozyer S, Uzunlar O, Ozcan N, et al. Endometriomas in adolescents and young women. J Pediatr Adolesc Gynecol 2013; 26:176–79.
21. Strubel N, Lala SV. Ovarian neoplasms of childhood. J Pediatr Radiol 2019; 49 (11):1463-75. doi:10.1007/s00247-019-04456-8. Epub 2019 Oct 16.
22. Reddihalli PV, Subbian A, Umadevi K, Rathod PS, Krishnappa S, Nanaiah SP, et al. Immature teratoma of ovary—outcome following primary and secondary surgery: study of a single institution cohort. Eur J Obstet Gynecol Reprod Biol. 2015; 192: 17-21. doi: 10.1016/j.ejogrb.2015.06.017