Prospective analysis of 300 cases of ovarian cysts in Iraqi women

Tlefih A. J. *
Majeed F. M. **

*Department Of Surgery, Al - Kindy Medical College, University of Baghdad.
** Al - Elweya Teaching Hospital.

Abstract

Background: Most ovarian cysts (O C) are functional, benign, harmless, and may disappear on their own within a few months. However, they may twist, rupture, bleed, or press on the surrounding organs. It may be difficult to differentiate malignant O Cs from the benign unless histopathological exam is performed. There are many methods for treatment of O Cs.
Objectives: The aim of this study is to know the prevalence of O Cs, and to study their types, presentation, and treatment.
Methods: Over a 5 year period, from Feb. 2000 to Jan. 2005, a prospective study of 300 women with O Cs was carried out in 3 hospitals in Baghdad (Al - Habeabia hospital, Al - Elweya teaching hospital and Al - Kindy teaching hospital).
Results: The highest incidence of O C (35%) was among women aged 21 - 30 years. The functional O C was the most common type (64.7%), and (31%) of them showed spontaneous resolution. (68.3%) of O Cs were singular.
(60%) of O Cs were symptomatic, and lower abdominal pain or discomfort was the most common symptom (91.7%). (75%) of cases were treated surgically and cystectomy was the most common surgical procedure that was adopted in this study (72.9 %).
(2.7%) of women had malignant O Cs. Out of them (75%) were at advanced stage (III or IV), and (87.5%) were postmenopausal.
Conclusion: Most of the O Cs were benign or functional, symptomatic and some may disappear without treatment, but surgery was the main treatment. The highest incidence of O C was among women aged 21 - 30 years. Most malignant O Cs were at advanced stage (III or IV).

Keywords: Graafian follicle, benign cyst, malignant cyst, cystectomy

الخلاصة

تمهيد : أكثر أكياس المبيض هي أكياس وظيفية، حميدة، غير مؤذية، وقد تختفي لوحدها خلال بضعة شهور. الا انها قد تلتوي، تتمزق، تنزف، أو تضغط على الاعضاء المجاورة.وقد يكون من الصعب تمييز الأكياس الخبيثة من الحميدة الا بعد اجراء الفحص النسيجي. هناك طرق متعددة لمعالجة أكياس المبيض.

الاهداف : معرفة مدى انتشار أكياس المبيض، ودراسة انواعها وكيفية مجئ المرضى وطرق المعالجة.
الطرق : هذه دراسة مستقبلية لثلاثمائة امرأة مصابة بأكياس المبيض تمت معالجتهن و متابعتهن للفترة من شباط 2000 الى كانون الثاني 2005 في 3 مستشفيات في بغداد (مستشفى الحبيبية، مستشفى العلوية التعليمي، ومستشفى الكندي التعليمي).
ألنتائج : الحادثة الأعلى (35 %) كانت بين النساء بعمر 21 - 30 سنة. كيس المبيض الوظيفي كان النوع الأكثر شيوعا (64.7 %)، وان (31 %) من هذا النوع اختفى تلقائيا. و وجد ان (68.3 %) من أكياس المبيض كانت مفردة.
لوحظ ان (60 %) من الحالات كان مجيئها باعراض مختلفة ولكن الام واضطرابات البطن كانت الاكثرحدوثا(91.7%)

(75 %)من الحالات عولجت جراحيا. الإجراء الجراحي الأكثر شيوعاً في هذه الدراسة كانت عملية استئصال الكيس(72.9%)
(2.7%) من النساء ثبت اصابتهن بأكياس المبيض الخبيثة. وان(75%) منهن في المرحلة المتقدمة. و كان عمر (87.5%) منهن عقب سن اليأس.
الاستنتاجات : أكثر أكياس المبيض هي أكياس حميدة أو وظيفية، مصحوبة بأعراض مختلفة والبعض منها قد يختفي بدون معالجة. ولكن الجراحة كانت المعالجة الرئيسية.
الحادثة الاعلى كانت بين النساء بعمر 21 – 30 سنة.معظم أكياس المبيض الخبيثة كانت في المرحلة المتقدمة.

الكلمات الدليلية : جريب كراف، كيس حميد، كيس خبيث، استئصال الكيس.

Introduction

Monthly one ovary produces an egg. The egg is enclosed in a sac called Graafian follicle. O C is a fluid-filled sac within or on the surface of an ovary. They can be presented from the neonatal period to postmenopause. Most O Cs are functional cysts (that result from a failure of the follicle to rupture or regress or corpus luteum cysts which are derived from hemorrhage in a corpus luteum)[1]. There are other types of O Cs including dermoid cysts (mature cystic teratomas), endometrioid cysts (chocolate cysts), polycystic ovaries, and cystadenomas.
Although most O Cs are benign, harmless, they do not cause symptoms, and may disappear on their own within a few months, it may be difficult to differentiate malignant O Cs from the benign unless histopathological exam is performed. However, they can cause symptoms, and may twist, rupture, bleed, or press on the surrounding organs. While unilocular ovarian cysts are associated with a less than 1% risk for ovarian cancer in asymptomatic premenopausal women, those that occur in premenarchal and postmenopausal females have a higher risk of malignancy [2,3]. Complex ovarian cysts with wall abnormalities or solid areas are associated with significant risk for malignant disease [4,5].
Management of O Cs depends on the age, menopausal status, the size and structure of the cysts[6]. It includes watchful waiting with re-evaluation, use of contraceptive pill, ultrasonography (US)-guided aspiration with or without methotrexate injection and cytologic examination, laparoscopic, and conventional surgical excision. Exploratory laparotomy is necessary in all cases of suspected ovarian cancer to help confirm the diagnosis, determine the extent of the disease by staging, and resect the tumor [7,8,9].

Patients and methods

325 women with O Cs consulted us in 3 hospitals in Baghdad (Al - Habeabia hospital, Al - Elweya teaching hospital and Al - Kindy teaching hospital) between Feb. 2000 and Jan . 2005. Complete follow-up was obtained in 300 patients only, because 25 patients did not come to the follow - up appointment.

Most cases were diagnosed by abdominal US after good history and clinical examination with pelvic exam. Some cases were discovered incidentally when abdominal U S was requested for other purposes. Chest X – ray, routine haematological tests, urinalysis were requested for all cases. Liver and renal function tests, fasting blood sugar test, urine pregnancy test, transvaginal US, doppler study, and computerized tomography (CT) scan were performed for some patients. Coagulation studies were made for those who presented with vaginal bleeding. Determinations of blood group with preparation of blood were performed for patients who presented in a collapsed state. The definite diagnosis was based on the histopathological results.
We recommended conservative treatment for small asymptomatic functional O C, which was a watchful waiting for 2 menstrual cycles with follow-up US, and if the cyst persisted we used birth control pills and rechecked with US to assess the cyst resolution. We made laparotomy for any patient refused conservative treatment as

a result of anxiety and fear of cancer, for any post-menopausal woman, and those with family history of O C and / or cancer. It was also recommended for any O C greater than 6 cm in diameter, symptomatic, persisted or recurred after conservative treatment, and those with obvious or suspected malignant features. For complicated O Cs which presented with acute abdomen, urgent laparotomy was performed after rapid resuscitation.

Whenever there is a possibility of ovarian cancer, the patient's consent included a total hysterectomy. We used Pfannenstiel, lower mid line or paramedian incision. During surgery we avoided rupturing the cyst and spilling its content into the peritoneal cavity.

The majority of O Cs were treated by cystectomy. Patients with atrophied ovary, numerous, or recurrent O C were selected for oophorectomy. If histopathological results confirmed malignant lesion we made second laparotomy for proper treatment. For those with operative evidence of malignant lesion we had made thorough exploration of the abdomen and pelvis, total hysterectomy, bilateral salpingo-oophorectomy, omentectomy with multiple biopsies from the peritoneum and lymph node sampling. For those with stage I unilateral disease who refused hysterectomy and wished to be pregnant we made unilateral salpingo-oophorectomy. We performed tumor debulking for those with advanced - stage disease.

Results

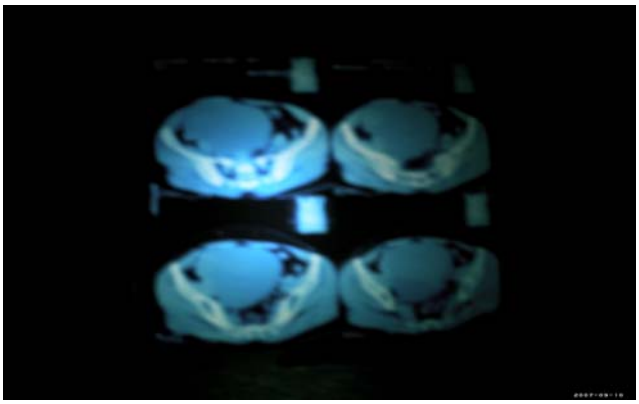
The study included 300 patients with O Cs, their ages ranged from 15 - 66 years with a mean of 32.16 years.

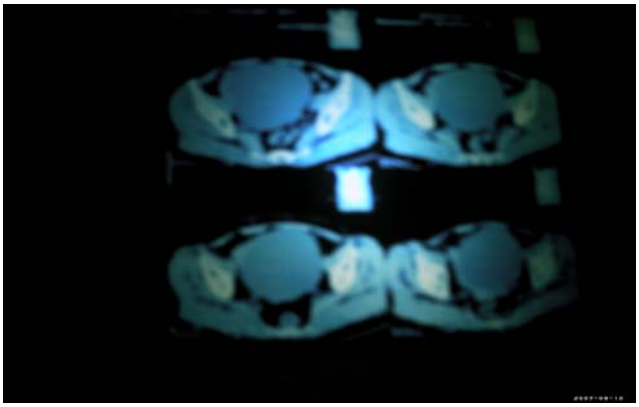
Table - 1 illustrates that functional O C (64.7%) was the most common type, and the highest incidence (35%) was among women aged 21 - 30 years.

Table – 1: Incidence of types of O C in relation to the age group of the patients.

Age group Year	Functional O C	Endometrioid O C	Dermoid cyst	Serous cystadenoma	Mucinous cystadenoma	Cystadeno carcinoma	Total&%
15 – 20	30	1	13	2	0	0	46(15.3%)
21 – 30	77	3	17	7	1	0	105(35%)
31 – 40	50	4	14	7	3	0	78(26%)
41 – 50	37	3	10	0	3	1	54(18%)
51 – 60	0	0	2	5	0	5	12(4%)
Over 60	0	0	0	1	2	2	5(1.7%)
Total&%	194(64.7%)	11(3.7%)	56(18.7%)	22(7.3%)	9(3%)	8(2.6%)	300(100%)

The cysts were 0.5 – 20.5 cm in diameter (mean, 5.5cm). Figure - 1 shows a large O C, which was removed surgically.





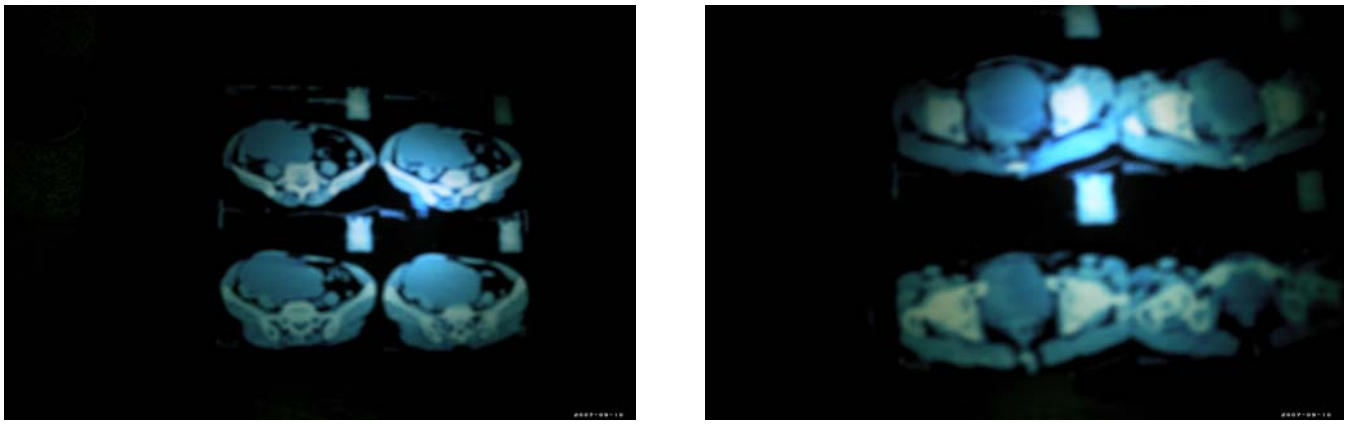


Figure - 1: Abdominal C T scan showing a large O C (20.5 cm in diameter).

Most of the O Cs (68.3%) were singular (Figure - 2)

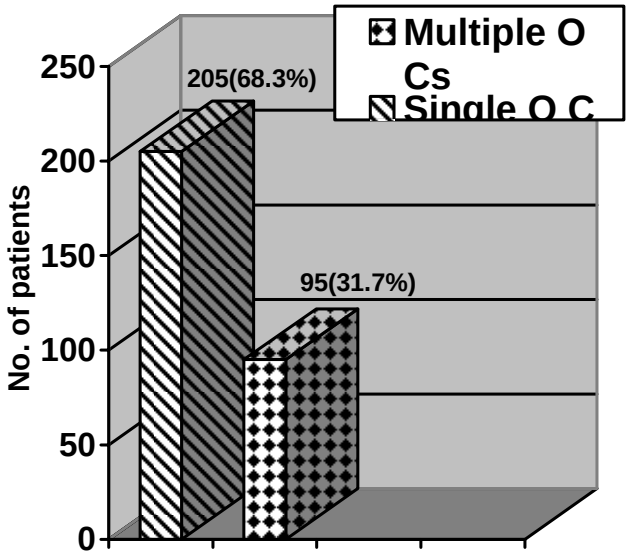


Figure – 2: Incidence of singular and multiple O Cs

120 (40%) of O Cs were asymptomatic was performed for other reason (Figure - 3). discovered incidentally when abdominal U S

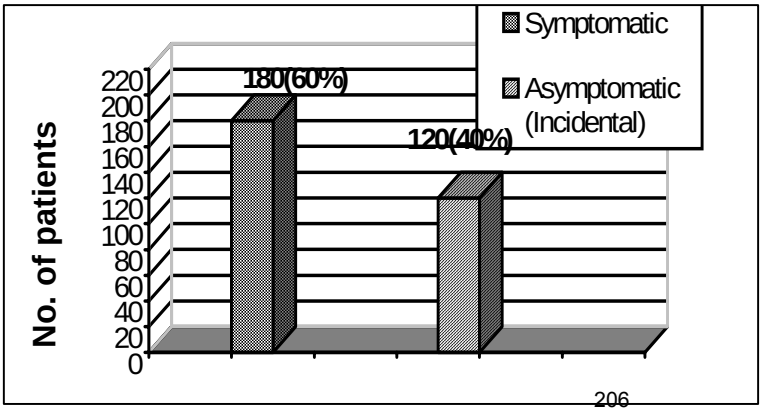


Figure – 3: Incidence of patients According to the presence of symptoms.

Lower abdominal pain or discomfort was the most common symptom (91.7%), as shown in table – 2

Table – 2: Distribution of patients according to the symptoms.

Symptom	No.	%
Lower abdominal pain or discomfort	165	91.7
Irregular vaginal bleeding	53	29.4
Nausea and/or vomiting	30	16.7
Urinary urgency	45	25
Weight loss	12	6.7
Dyspareunia	32	17.8
Feeling of heaviness	28	15.5
Weakness	17	9.4
Abdominal swelling	42	23.3
Abdominal distension	34	18.9

Figure - 4 Demonstrates that surgery was the main type of treatment.

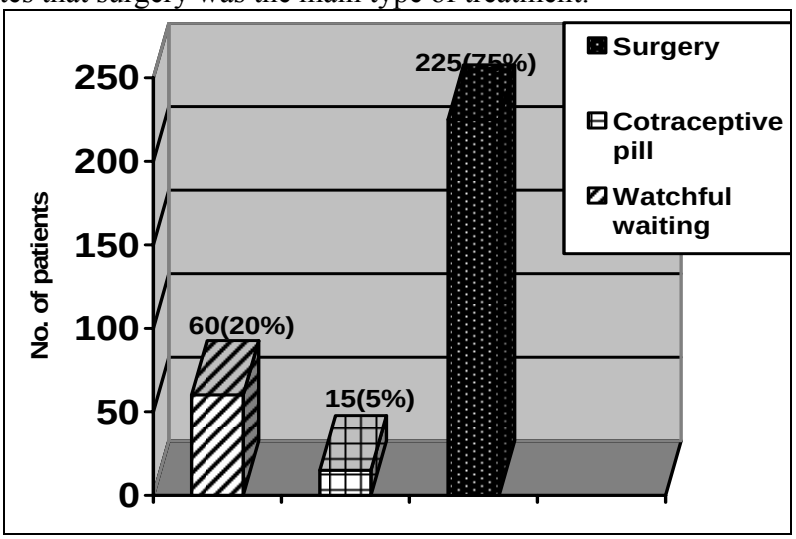


Figure - 4: Distribution of patients according to the types of treatment.

Follow - up US of functional O Cs had showed spontaneous cyst resolution in 60 (31%) cases (represented 20% of the total number of women). 45 (15%) patients with functional O Cs refused conservative treatment and decided to undergo surgery as a result of anxiety and fear of malignancy.

225 patients underwent various surgical procedures. Table - 3 clarifies the types of operations that were performed, and it shows that cystectomy was the operation that was prevalently employed (72.9 %).

Table – 3: Distribution of patients according to the types of treatment

Type	No.	%
Cystectomy	164	72.9
Oophorectomy	53	23.6
unilateral salpingo - oophorectomy	1	0.4
total hysterectomy and bilateral salpingo-oophorectomy	1	0.4
tumor debulking	6	2.7

Total	225	100

Urgent laparotomy was performed for 62 (20.7%) complicated O Cs that was presented as acute abdomen, as shown in Figure - 5, which also verified that twisted O C represented the most common complicated O C (54.8%).

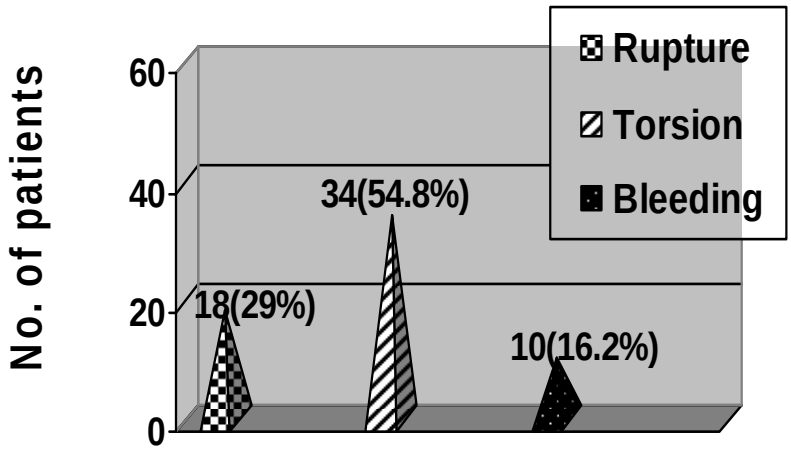


Figure - 5: Prevalence of patients in relation to O C complications.

The histopathological results documented 8 (2.7%) patients with malignant O Cs, while the remaining cases were functional or benign (Figure - 6), and all 8 (100%) of the ovarian cancers were epithelial ovarian cystaden-ocarcinomas.

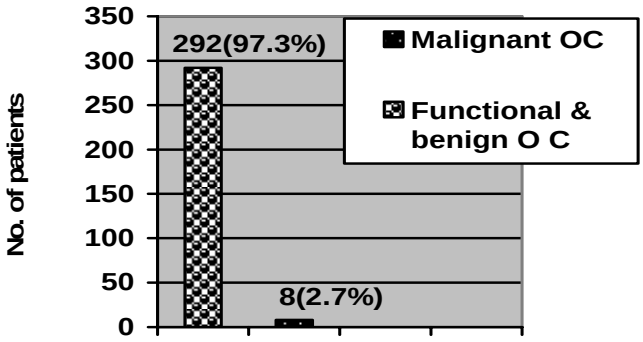


Figure – 6: Incidence of benign and malignant O Cs.

One (12.5%) of the eight malignant cases was premenopausal while the remaining 7 (87.5%) were postmenopausal. 2 (25%) women had family history of cancer. 6 (75%) women were at advanced stage (III or IV).

Discussion

In this work we depended mainly on US for diagnosis and assessment of O C resolution. This is in agreement with Okai T. and Shushan A. et al who stated that US remains the best approach for identifying functional cysts and follow-up cyst resolution [10,11].

Our study showed (20%) of O Cs resolved spontaneously, which is much less than that mentioned by Janet Cochrane Miller et al which was (69%) [12]. 225 (75%) of women underwent laparotomy, which was much higher than that documented in U.S. which was 5% – 10% [13].

This difference might be due to that most of our cases were symptomatic and some of asymptomatic women asked for operative treatment due to anxiety and fear of malignancy.

Janet Cochrane Miller et al recommended surgical removal of any simple O C that is larger than 5 - 6 cm, because these cysts can torse[12], and Nagele Fritz et al stated that Large ovarian cysts are conventionally treated by laparotomy[14]. It is stated that in the presence of family history of cancer, the current recommendation is that the lesion should be resected rather than followed [12]. Our decisions were similar to the above studies.

We have found that twisted O C which presented with acute abdomen represented the most common complicated O C (54.8%), similar result was obtained by Yalcin OT et al[15]. We used laparotomy as the main type of treatment for O C, this is supported by other researchers such as Shushan A. et al who stated that laparotomy is still considered the standard for ovarian cyst removal[11].

The present study showed 292 (97.3%) cases to be benign or functional whereas 8 (2.7 %) were malignant, this is similar to that reported by Finkler N et al who mentioned that most of O Cs are benign or functional[16], and the same as that of Kasales CJ. et al who found that most O Cs are benign[17]. But interestingly our percentage of malignancy was less than that mentioned by Janet Cochrane Miller et al which was 6.1%[12], and much less than that documented in U.S. which was 13% – 21%[13].

It is stated that epithelial tumors are the most common histopathologic type of malignant ovarian tumor [18,19], this is consistent with our study which showed that all 8 (100%) of the ovarian cancers were epithelial. But our percentage is higher than that mentioned by Prat J. and Krigman H. et al who stated that 85% of malignant ovarian neoplasms is epithelial [20,21].

We have found 7(87.5%) women with malignant O C were postmenopausal, which is slightly less than that documented by Usha Menon (90%)[22]. And 6 (75%) of them were at advanced stage (III or IV), which is consistent with Usha Menon study which stated that ovarian cancer is generally detected at an advanced stage[22], and similar to the lower limit of the range mentioned by Oates-Whitehead R (75% to 80%) [23], but dissimilar to what is mentioned by Janet Cochrane Miller et al that in one study all 10 of the ovarian cancers detected were at advanced stage (III or IV)[1]. Out of 8 women with malignant O C, 2 (25%) patients had family history of cancer, which is higher than the upper limit of the range documented by Wooster R et al (10% - 20%) [24].

Although it is somewhat controversial [8,25], we did unilateral salpingo - oophorectomy for a patient with malignant O C (stage I) because she refused hysterectomy due to her wishing to conceive.

Conclusion

1. Most O Cs were benign or functional, symptomatic and some may disappear without treatment, but it is essential, that accurate preoperative evaluation should be performed to diminish the risk of unexpected malignancy during surgery.
2. Surgery was the main treatment, and cystectomy was the operation that prevalently employed.
3. The highest incidence of O C was among women aged 21 - 30 years, and lower abdominal pain or discomfort was the most common symptom.
4. Most malignant O Cs were at advanced stage (III or IV).

Recommendations

Frozen section is essential for accurate and proper management of any suspected malignant O C.

References

1. Russell P, Bannatyne P. Dysfunctional cysts. Surgical pathology of the ovaries. Churchill Livingstone. 1989; 97-107.
2. Bailey CL, Ueland FR, Land GL, DePriest PD, Gallion HH, Kryscio RJ, et al. The malignant potential of

small cystic ovarian tumors in women over 50 years of age. *Gynecol Oncol. 1998; 69(1):3-7*.
3. Roman LD. Small cystic pelvic masses in older women: Is surgical removal necessary? *Gynecol Oncol 1998; 69(1):1-2.*
4.Valentin L. Use of morphology to characterize and manage common adnexal masses. *Clin Obstet Gynaecol 2004;18(1):71-89.*
5. Timmerman D. The use of mathematical models to evaluate pelvic masses: Can they beat an expert operator? *Clin Obstet Gynaecol 2004;18(1):91-104.*
6. Finkler N, Benacerrat B, Lavin F, Wojciechowski C, Knapp R. Comparison of serum Ca-125, clinical impression, and ultrasound in the preoperative evaluation of ovarian masses. *Obstet Gynecol 1988;72:659-64*
7. Stier EA, Barakat RR, Curtin JP, Brown CL, Jones WB, Hoskins WJ. Laparotomy to complete staging of presumed early ovarian cancer. *Obstet Gynecol 1996; 87:737-740.*
8. Helewa ME, Krepart GV, Lotocki R. Staging laparotomy in early epithelial ovarian carcinoma. *Am J Obstet Gynecol 1986; 154:282-286*
9. Hoskins WJ. Surgical staging and cytoreductive surgery of epithelial ovarian cancer. *Cancer 1993; 71:1534-40.*
10. Okai T. Transvaginal sonographic appearance of hemorrhagic functional ovarian cysts and their spontaneous regression. *Int J Gynecol Obstet 1994; 44:47-52.*
11. Shushan A, Peretz T, Uziely B, Lewin A, Mor-Yosef S. Ovarian cysts in premenopausal and postmenopausal tamoxifen-treated women with breast cancer. *Am J Obstet Gynecol. 1996; 174:141- 44.*
12. Janet Cochrane Miller, Susanna I. Lee. Incidentally Detected Adnexal Masses. Radiology Rounds march (3) 2007: 125-28.
13. NIH Consensus Conference. Ovarian cancer: screening, treatment, and follow-up—NIH Consensus Development Panel on Ovarian Cancer. *JAMA 1995; 273:491-97.*
14. Nagele Fritz ; Magos, Adam L. Combined ultrasonographically guided drainage and laparoscopic excision of a large ovarian cyst. Case reports. *American Journal of Obstetrics & Gynecology. November 1996.175 (5):1377-78.*
15. Yalcin OT, Hassa H, Zeytinoglu S. Isolated torsion of fallopian tube during pregnancy, report of two cases. *Eur J Obstet Gynecol Reprod Biol 1997;74:179-82.*
16. Finkler N, Benacerrat B, Lavin F, Wojciechowski C, Knapp R. Comparison of serum Ca-125, clinical impression, and ultrasound in the preoperative evaluation of ovarian masses. *Obstet Gynecol 1988;72:659-64.*
17. Kasales CJ, Meilstrup JW, Harris RD. Common imaging problems in the postmenopausal pelvis: the endometrial stripe, intrauterine fluid, and adnexal cyst. *Semin Roentgenol. 1996; 31:279-87.*
18. Koonings PP, Campbell K, Mishell DR, Grimes DA. Relative frequency of primary ovarian neoplasms: a 10-year review. *Obstet Gynecol 1989; 74:921-26.*
19. Russell P. Surface epithelial-stromal tumors of the ovary. 4th ed. Springer-Verlag, 1994; 705-82.
20. Prat J. Serous borderline tumors of the ovary. *Adv Clin Pathol 1997; 1:97-102.*
21. Krigman H, Bentley R, Robboy SJ. Pathology of epithelial ovarian tumors. *Clin Obstet Gynecol. 1994; 37:475-91.*
22. Usha Menon. Ovarian cancer screening. *CMAJ. August (17), 2004: 171-78..*
23. Oates-Whitehead R. Ovarian cancer. *Clinical Evidence. 2004. (11): 2493–2505*
24. Wooster R, Weber BL (2003). Breast and ovarian cancer. *New England Journal of Medicine. 2003. 348(23): 2339-47.*
25. Hoskins WJ. Epithelial ovarian carcinoma: principles of primary surgery. *Gynecol Oncol. 1994; (55):91-96*