**The Effect of Smoking on the Diagnosis of Breast Lump**

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**Abstract**

**Background**: It has been well-known that smoking is a risk factor for a variety of cancers in humans eg. Lung, stomach and urinary bladder cancers. Till now there has been no clear association between smoking and breast cancer.

 There is a well-established relationship between smoking and duct ectasia/ periductal mastitis.

 The presented study tries to spot the light on how smokers differ from nonsmokers regarding the diagnosis of breast lumps and the relative percentage of each diagnosis.

**Methods:** A random sample of 114 patients with breast lumps (half of which were smokers and the other half non- smokers) had been studied prospectively and the diagnosis made by "triple assessment", when necessary excisional biopsy, then the diagnosis difference between the smoker and the nonsmoker group had been studied. The smokers had been smoking one packer or more each day.

 **Results:** All of the patients were females with age between 13 and 70 years (mean age 41).

 The diagnosis of the lumps in the smokers sample was as follows: fibroadenoma 20(35%), fibrocystic disease 16(28%), breast abscess 7(12.3%), carcinoma 7(12.3%), duct ectasia/ periductal mastitis 4(7%), galactocoele 3(5.3%), total number of patients 57.

 The diagnosis of the lumps in the non-smokers sample was as follows: fibroadenoma 18(31.6%), fibrocystic disease 16(28%), breast abscess 8(14%), duct ectasia/ periductal mastitis 6(10.5%), galactocoele 4(7%), carcinoma 2(3.5%), Pyllodes 1(1.8%), nonhodgkin lymphoma 1(1.8%), lipoma 1(1.8%), total number of patients 57.

**Conclusion:** Reviewing the diagnosis of breast lumps in smokers and nonsmokers reveals two important facts: a significantly higher incidence of breast cancer has been found in the smokers. Another unexpected finding was that duct ectasia/ periductal mastitis was more common in the nonsmoker sample.

**تاثير التدخين على تشخيص عقدة الثدي**

**الخلاصة**

**المقدمة:**من المعروف ان التدخين من مسببات العديد من السرطانات في الانسان مثل: سرطان الرئة والمعدة والمثانة. لكن الى وقتنا هذا لم يثبت ان هناك علاقة واضحة بين التدخين وسرطان الثدي.

من ناحية اخرى هناك علاقة معروفة بين التدخين ومرض توسع قنوات الحليب.

البحث المقدم يسلط الضوء على كيفية اختلاف تشخيص عقدة الثدي بين المدخنات وغير المدخنات.

**الاسلوب:** تم اخذ عينة عشوائية مكونة من 114 مريضة ولديهن عقدة الثدي( نصف المريضات من المدخنات والنصف الاخر من غير المدخنات) وتم دراستهن مستقبليا والوصول الى التشخيص عن طريق "التقييم الثلاثي " وعند الحاجة اخذ عينة استئصالية للورم. كما وقد تمت دراسة الفرق في نسب التشخيص بين المدخنات وغير المدخنات .

**النتائج:** جميع المرضى كانوا من النساء وتراوحت الاعمار مابين 13 و 70 سنة ( معدل العمر41).

نسب تشخيص الاورام في المدخنات كان بالشكل التالي: الورم الليفي 20(35%), تكيس الثدي الليفي 16(28%) , خراج الثدي 7(12,3%) , سرطان الثدي 7(12,3%) , توسع قنوات الحليب 4(7%) , اكياس الحليب 3(5,3%) العدد الكلي كان 57.

نسب تشخيص الاورام في غير المدخنات كان بالشكل التالي: الورم الليفي 18(31,6%) , تكيس الثدي الليفي 16(28%) , خراج الثدي 8(14%) , سرطان الثدي 2(3,5%) , توسع قنوات الحليب 6(10,5%) , اكياس الحليب 4(7%) ,اورام فلوديس 1(1,8%), اورام الثدي اللمفاوية نونهوجكن1(1,8%) ,اورام شحمية 1(1,8%) العدد الكلي كان 57.

**الاستنتاج:** عند مراجعة تشخيص اورام الئدي في المدخنات وغير المدخنات تم ملاحضة امران: زيادة ملحوضة في سرطان الثدي لدى المدخنات. الامر الاخر غير المتوقع هو ان توسع قنوات الثدي كان اكثر لدى غير المدخنات.

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**Introduction**

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t has been well-known that smoking is a risk factor for a variety of cancers in humans eg. Lung, stomach and urinary bladder cancers [1-3]. Till now there has been no clear association between smoking and breast cancer in most of the presented studies previousely.

 On the other hand there is a well-established relationship between smoking and duct ectasia/ periductal mastitis[4,5].

 The presented study tries to spot the light on how smokers differ from nonsmokers regarding the diagnosis of breast lumps and the relative percentage of each diagnosis.

 "Triple assessment" had been advocated to reach the diagnosis using its three pillars; history and examination, fine needle aspiration cytology and imaging (mammography and ultrasonography). In this way the diagnosis can be made in more than 99% of the cases [6-8].

**Patients and Methods**

 A random sample of 114 patients with breast lumps (half of which were smokers and the other half non- smokers) had been studied prospectively in the breast clinic of Al- Hilla teaching hospital between the 15th of January 2012 and the 23rd of march 2013 and the diagnosis made by "triple assessment", when necessary excisional biopsy, then the diagnosis difference between the smoker and the nonsmoker group had been studied.

**Results**

 All of the patients were females with age between 13 and 70 years (mean age 41).

 The diagnosis of the lumps in the smokers sample was as follows: fibroadenoma 20(35%), fibrocystic disease 16(28%), breast abscess 7(12.3%), carcinoma 7(12.3%), duct ectasia/ periductal mastitis 4(7%), galactocoele 3(5.3%), total number of patients 57 (table 1).

 The diagnosis of the lumps in the non-smokers sample was as follows: fibroadenoma 18(31.6%), fibrocystic disease 16(28%), breast abscess 8(14%), duct ectasia/ periductal mastitis 6(10.5%), galactocoele 4(7%), carcinoma 2(3.5%), Pyllodes 1(1.8%), nonhodgkin lymphoma 1(1.8%), lipoma 1(1.8%), total number of patients 57(table 2)

**Table 1** Diagnosis of breast lumps in smokers

|  |  |
| --- | --- |
| Number of Cases & Percentage  | Diagnosis  |
| 20 (35%) | **Fibroadenoma**  |
| 16 (28%) | **Fibrocystic Disease**  |
| 7 (12.3%) | **Breast Abscess**  |
| 7 (12.3%) | **Breast Cancer**  |
| 4 (7%) | **Duct Ectasia**  |
| 3 (5.3%) | **Galactocoele**  |
| 57 (100%) | **Total** |

**Table 2** Diagnosis of breast lumps in non-smokers

|  |  |
| --- | --- |
|  Number of Cases &Percentage  | Diagnosis |
| 18(31.6%) | **Fibroadenoma** |
| 16 (28%) | **Fibrocystic Disease** |
| 8(14%) | **Breast Abscess** |
| 6 (10.5%) | **Duct Ectasia** |
| 4 (7%) | **Galactocoele** |
| 2 (3.5%) | **Breast Cancer** |
| 1 (1.8%) | **Phyllodes**  |
| 1 (1.8%) | **Non Hodgkin Lymphoma** |
| 1 (1.8%) | **Lipoma** |
| 100%)57) | **Total**  |

**Discussion**

 The main parameter that had been studied in presented study was smoking. Smoking did not seem to affect the diagnosis of most of the recorded pathologies. The significant difference between smokers and non-smokers was in the carcinoma cases as carcinoma has been diagnosed in 7(12.3%) of the smokers and in only 2(3.5%) of the non-smokers. This difference is regarded as substantial and needs an explanation. There are two possibilities for this. Either smoking is an important causative factor for breast cancer or there is something else that caused this significant difference. It is well-known that breast cancer incidence rises with age [9-11]. In Iraq smokers tend to be older women or the younger women deny their smoking habits for social reasons. In the presented study the mean age for the patients was 41 years but when went back to the records and calculated the mean age for smokers with breast lumps it was 52 years and this shows a significant difference in the mean age.

 Duct ectasia/periductal mastitis is known to be caused by smoking due to the arteriopathy that smoking causes or due to the growth of different forms of microorganisms that cause periductal mastitis followed by dilatation of the lactiferous ducts [12-14 ]. Surprisingly, in the presented study, the relative percentage of duct ectasia/ periductal mastitis has been found to be more in the non-smokers 6(10.5%) than the smokers 4(7%). This may be due to the presence of mastitis which is related to breast lactation in most of the cases [15-17 ].

**Conclusion**

Reviewing the diagnosis of breast lumps in smokers and nonsmokers reveals two important facts: a significantly higher incidence of breast cancer has been found in the smokers. Another unexpected finding was that duct ectasia/ periductal mastitis was more common in the non-smoker sample.

**References**

1.Hui ZHAO, Jundong GU, Hongrul XV, Bringjun YANG, et al.: Meta-analysis of the relationship between passive smoking population in China and lung cancer, Chinese Journal of Lung Cancer 2010, Vol. 13: 617-623.

2.Na LIV, Yueping SHEN, Li giang QIN: Meta-analysis of smoking and the risk of gastric cancer among the Chinese population, Cancer Biology and Medicine Journal 2009, Vol. 6: 296-302.

3.Lin Jie, Spitz Margant R., Dinney Colm P., Etzel Grol J., et al.: Bladder cancer risk as modified by family history and smoking 2006, Vol. 107: 705-707.

4. Rahal R.M.S., Junior R., Reis C., et al.: Risk factors of duct ectasia, The Breast Journal 2005, Vol. 11: 262-265.

5.Rahal R.M.S., Junior R., Reis C, et al.: Prevalence of bacteria in the nipple discharge of patients with duct ectasia , International Journal of Clinical Practice 2005, Vol. 59: 1045-1050.

6.Kaufman Schpitz, et al.: Use of the "triple test" for palpable breast lesions yields high diagnosis accuracy and cost savings, American Journal of Surgery 1995, Vol. 169:519-522.

7. Thomas F., Mathew S., Amy G., et al.: The role of triple assessment in benign breast disease, European Journal of Surgical Oncology 2012, Vol. 38: 461-466.

8. Russel, R.C.G., Williams, N.S. & Bulstrode, C.J.K.: Short Practice of Surgery , 24th Edition, Arnold, London, 2004: 826.

9. Tahir M., Robinson T. & Slotter A.: How not to neglect the cause of elderly breast cancer patients? The Breast Journal 2011, Vol. 20: 293-296.

10.McAree B., Donnell M.E., Spence A., Lioe T.F., et al.: Breast cancer in women under 40 years of age: A series of 57 cases from Northern Ireland, The Breast Journal, Vol. 19: 97-104.

11.Ndom P., Um G., Bell E.M.D., Eloundom A., et al.: A meta-analysis of male breast cancer in Africa, The Breast Journal 2012, Vol. 21: 237-241.

12.Kamal Rasha Mohammed, Hamed Soha Talaat & Salem Dorria Saleh: Classification of inflammatory breast disorders & step to step diagnosis, The Breast Journal 2009, Vol.15: 367-380.

13.Martinez- Parra, Diego, Nevada Santos, Manuel, Melendez-Guerrero, Blas, Garcia-Solano, Jose, et al.: Utility of fine needle aspiration in the diagnosis of granulomatous lesions of the breast, Diagnostic Cytopathology Journal 1997, Vol. 17: 108-114.

14. Miller S.D., McCollough M.L. & DeNAPOLI T.: Periductal mastitis technique and findings, Dermatological Surgery Journal 1998, Vol. 24: 383-385.

15 .Foxman B., Gillespie B., et al.: Lactation mastitis: Occurrence and medical management among 946 breast feeding females in the United States, American Journal of Epidemiology 2002, Vol.155: 103-114.

16. Dabbas N., Chand M., Pallett A., Royle Gavin T.,et al.: Have the organisms that cause breast abscess changed with time?.... Implications for the appropriate antibiotics usage in primary and secondary care, The Breast Journal 2010, vol.16: 412-415.

17. AlBenwan K., AlMulla A., Rotimi V.O.: A study of microorganisms of breast abscess in a teaching hospital in Kuwait, Medical Principles and Practice Journal 2011, Vol.20: 422-426.