Pathological study of the prostate tumors in Missan governorate

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ABSTRUT

Prostate cancer is the most frequently diagnosed in males and the second leading cause of cancer-related death in men older than 50 years of age after carcinoma of the lung.

The study was performed between (October-2011 to April-2012) the tissue samples were collected of (82) patients aged between(40- 90)years was infected with prostate tumors from histopathological laboratory in AL-Sadder hospital in Missan governorate in Iraq .Samples was kept in Buffered Formaldehyde (10%) for period (72) hours after that treated according to histopathological examination and stained with Hematoxylen –Eosin stain The data that were collected from prostate tumors patients was observed high incidence with the ages between (71-80) years represented by 28(34.1%)cases, the ages between (61-70)years represented by 22(26.8 %) cases and the ages between(51-60)years in 18(21.9 %)cases. Histopathological examination of the tissue samples show that the commonest type was adenocarcinmoma represented by (40.2%) ,followed by benign nodular hyperplasia which represented by (34%)cases ,squamousmetaplsia was represented by(15.8%),infract squamous metaplsia represented by(9.7%) of the cases.

A higher incidence of prostate cancers was confirmed at ages between (60 - 80)years, the commonest types of prostate tumors that observed in this study were adenocarcinoma and benign nodular hyperplasia, large size of prostate stones may be cause mild to moderate inflammation.

Key words: Prostate tumors,Adenocarcinoma, Prostate stones.

Introduction

Carcinoma of the prostate is the most common visceral cancer in the males ranking as the second most common cause of cancer and related death in men older than 50 years of age after carcinoma of the lung (1). The causes of prostate carcinoma remains unknown ,but clinical and experimental observations suggest that hormonal , genetic and environmental factors may play a role in pathogenesis (2).

The age is the strongest risk chance of getting prostate cancer ,where the incidence of prostate cancer is rising rapidly after age 50(3,4). Men who eat a lot of red meat have slightly higher chance of getting prostate cancer , also some studies have suggested that the men who consumed a lot of calcium may have higher risk of developing advanced prostate cancer (5).

Some of epidemiologic studies have generally shown that the obese man may be have a greater risk for developing the prostate cancer. Other studies have been shown weak positive associations between obesity measures and total prostate cancer incidence. the biological mechanisms underlying the association between adiposity and prostate cancer are complex. hormonal alterations, such as reduced concentrations of testosterone and higher levels of estrogen may decrease prostate cancer risk (6,7).

Symptomatic carcinoma of the prostate is more common and occur in younger American blacks than the whites and Asians men in 1.6times (8).Incidence of prostate cancer highest in Scandinavian countries (22 cases /100.000population), this results may be inversely related to the ultraviolet light exposure as the incidence increases the farther one lives from the quarter (9).

About (70-80%) of the prostate carcinoma arise in peripheral glands and early lesions appear as defined masses just beneath the capsular of the prostate. Most prostatic carcinoma are adenocarcinoma which composed of small glands (make prostatic fluid) that infiltrate to adjacent stroma ,the neoplastic glands lined by single layer of cuboidal cells which conspicuous nuclei(10) .

The nodular hyperplasia occur only in 10% of prostate cancer because the nodular hyperplasia preferentially involves the inner portions of the prostate . The nodules may have a solid appearance or contain cystic spaces which can cause urinary tract obstruction and lead to difficult in urination (11,12).

Carcinoma of the prostate are often clinically silent especially during early stage where 20% of localized carcinoma are discovered unexpectedly. If the cancer grows

and spreads beyond the prostate may cause pain or burning in urination , increased frequency of urination , blood in the urine or semen , pain in lower back and hips or upper thighs(1,12,13).

The aim of this study was performed to detect the relationship between the age and increasing of prostate cancer, also determined the commonest types of the prostate cancer in Missan governorate. .

Material and Methods

The present study was performed between (October-2011 to April-2012), the tissue samples were collected from (82) patients aged between(40- 90)years infected with prostate tumors after surgical operations, from Histopathological laboratory in AL-Sadder hospital in Missan governorate.

The tissue samples were kept in Buffered Formaldehyde (10%) for period (72) hours and after that the samples were treated according to the Luna (14) method for histological examination and stained with Hematoxylen –Eosin stain .

The Results

The data that were collected from the patients with prostate tumors observed high incidence with the ages between (71-80) years represented by 28(34.1%)cases, followed by the ages between (61-70)years represented by 22(26.8 %) cases and the ages between(51-60)years in 18(21.9 %)cases, while the ages between (81-90) were represented by 10(12.1)cases , Fig(1).

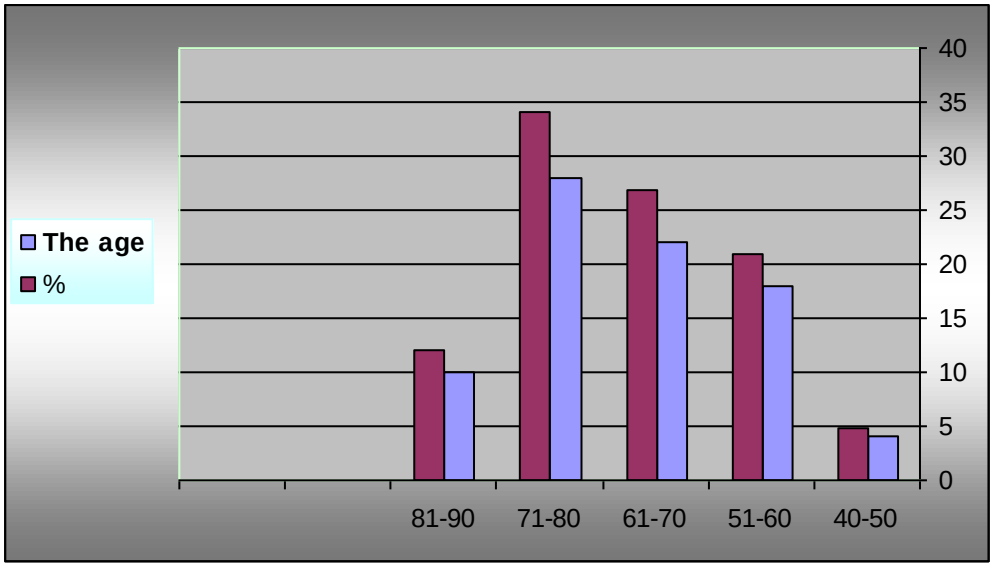


Fig (1) Distribution of the prostate tumor among the patients according to the different ages (NO:82).

Histopathological examination of the tissue specimens that obtained from the patients with prostate tumors through and after surgical operations show that the commonest type was Adenocarcinoma which represented by 33(40.2 %)cases and characterized by presence small glands (Neoplastic glands) that infiltrate to the adjacent stroma , the neoplastic glands are lined by single layer of cuboidel cells with conspicuous nuclei , there are absence papillary or cribriform epithelial structures, Fig(2).

Regressive changes of denocarcinoma were appeared in some cases which characterized by presence small pyknotic nuclei without detectable cytoplasm , there are small cords of malignant cells and the stroma composed of eosinophilic smoothe muscle fibers with pale staining, Fig(3).

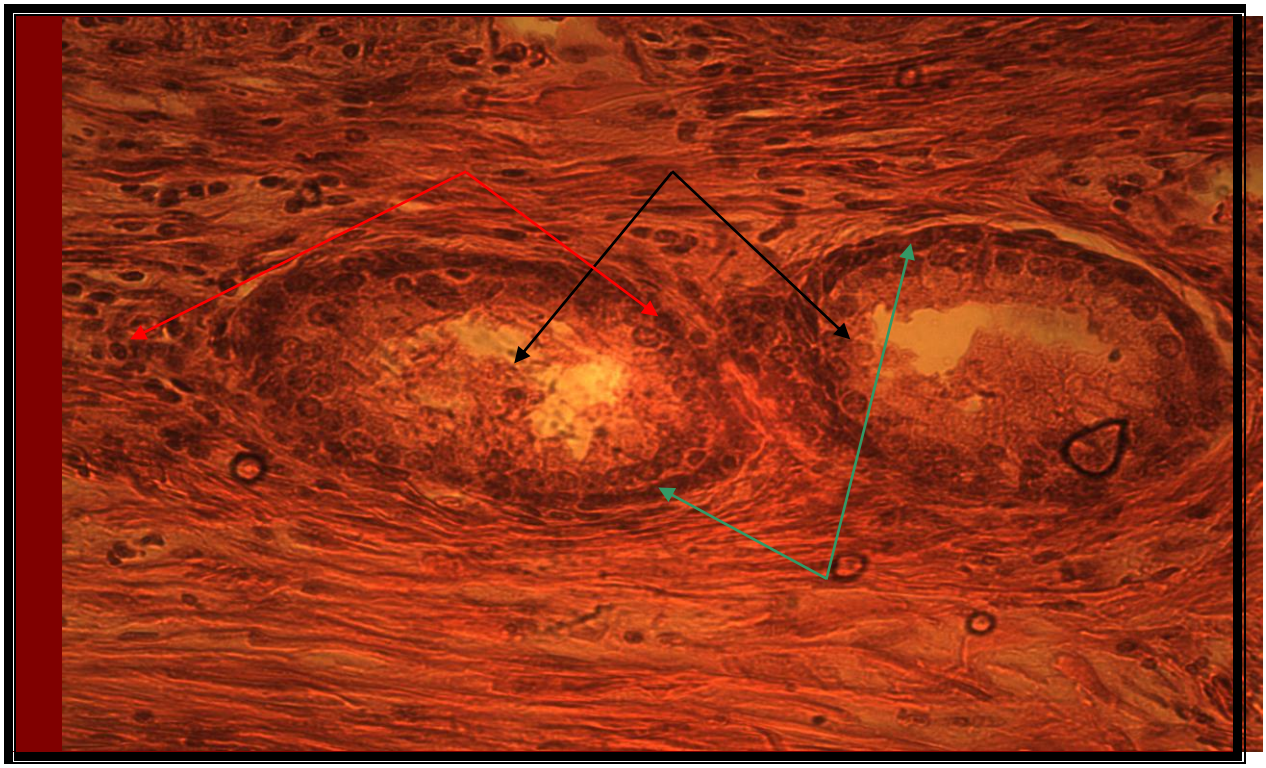


Fig (2) Adenocarcinoma in the prostate :characterized by presence of small neoplastic glands → which lined by single layer of cuboidel cells infiltrate of the neoplastic cells to the stroma → (250x.H&E) .

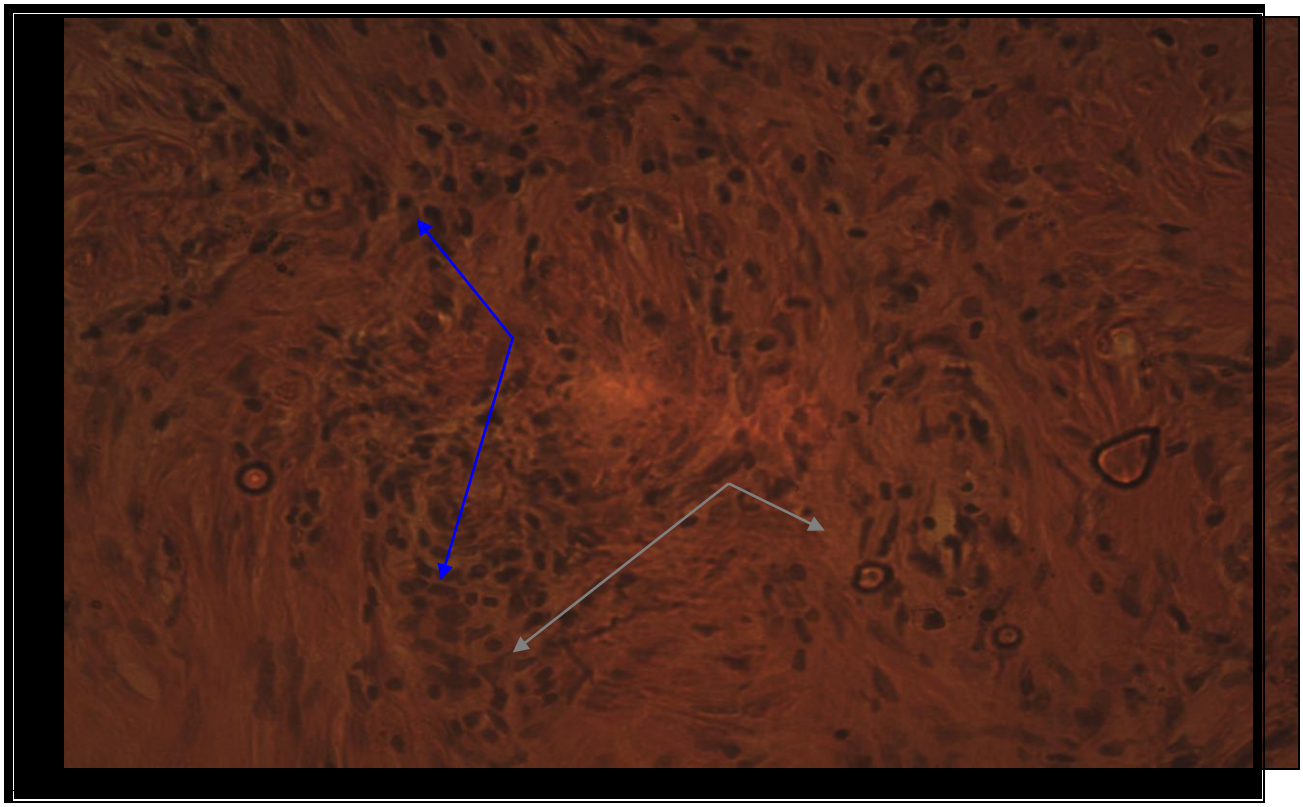


Fig (3) observed progressive of denocarcinoma were appeared in some cases which characterized by presence small pyknotic nuclei →, there are small cords of malignant cells also present → (350x.H&E)

Benign nodular hyperplasia was represented by 28(34.1) cases which characterized by presence nodules consist of acini and abundant fibromuscular stroma.the acini contain papiliform structure of epithelium growth toward the lumen of the acini, a few acini contain pale staining secretion and chronic inflammatory cells ,Fig (4).

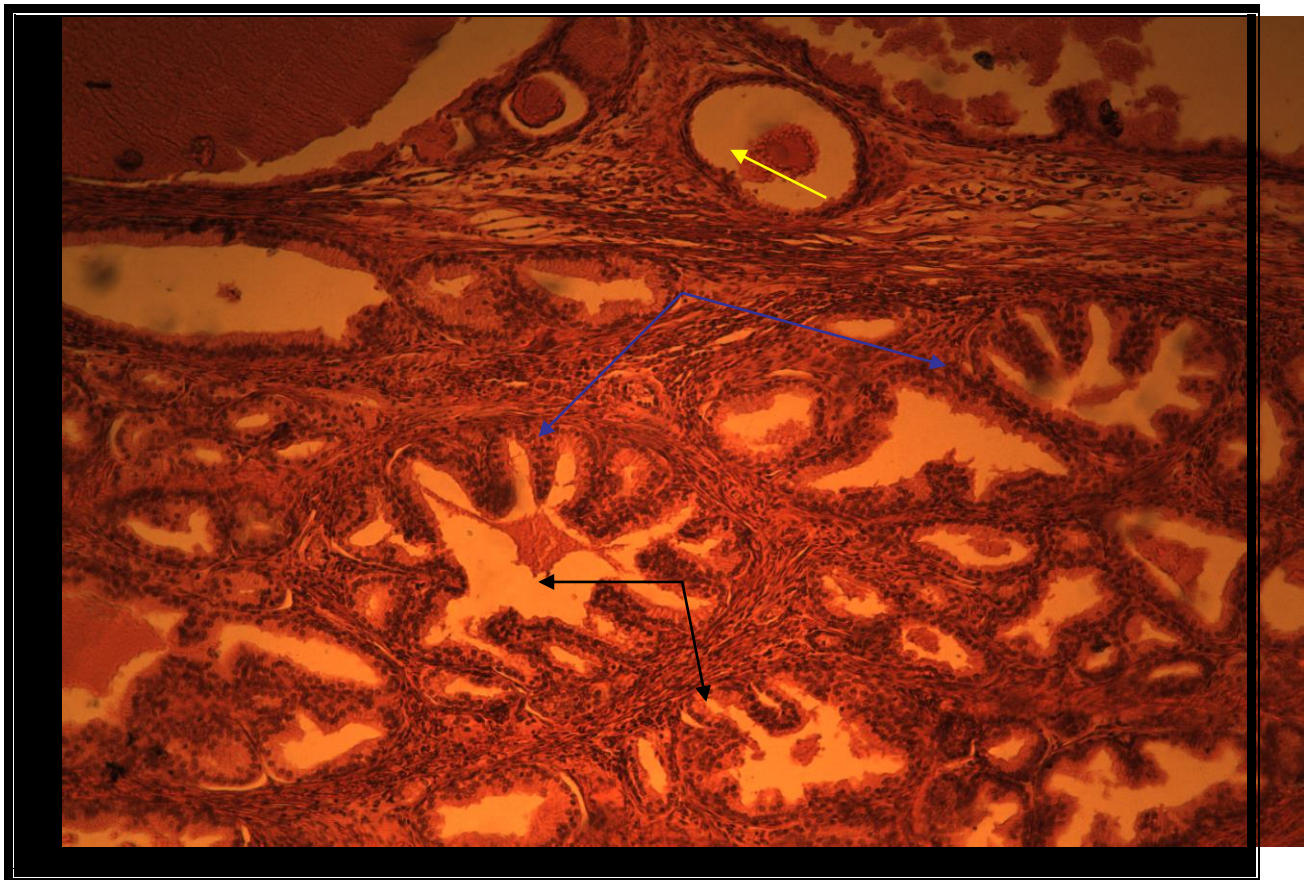
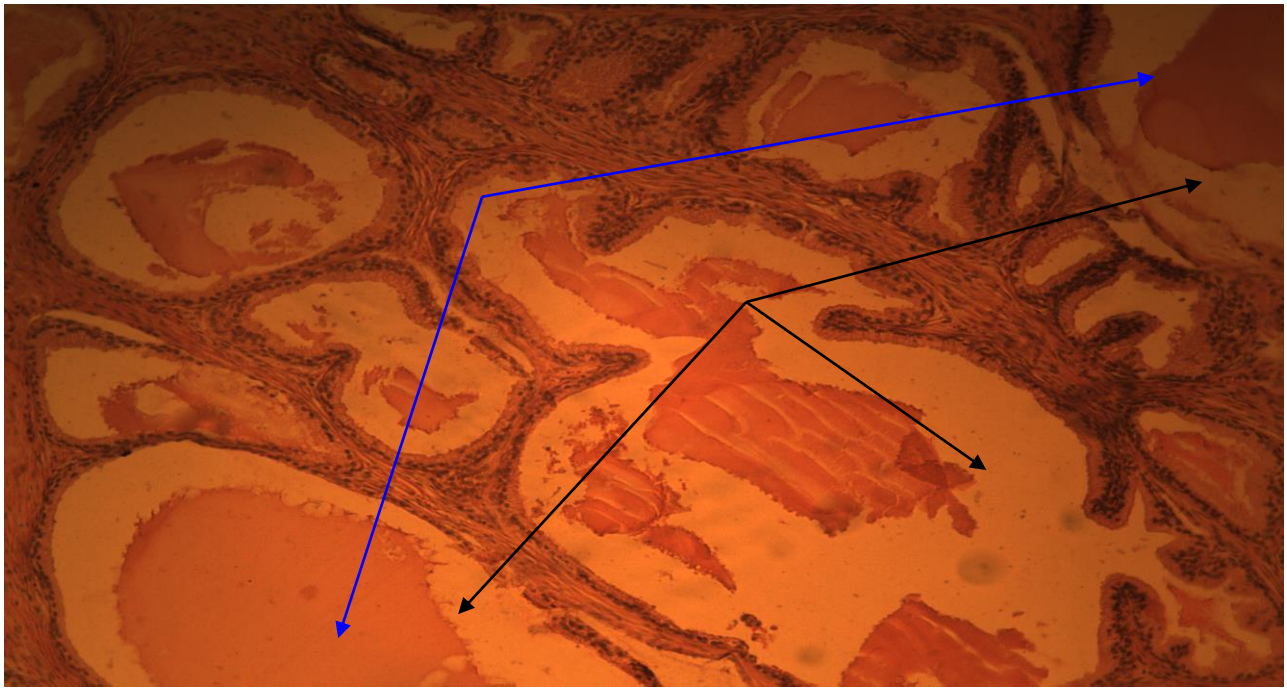
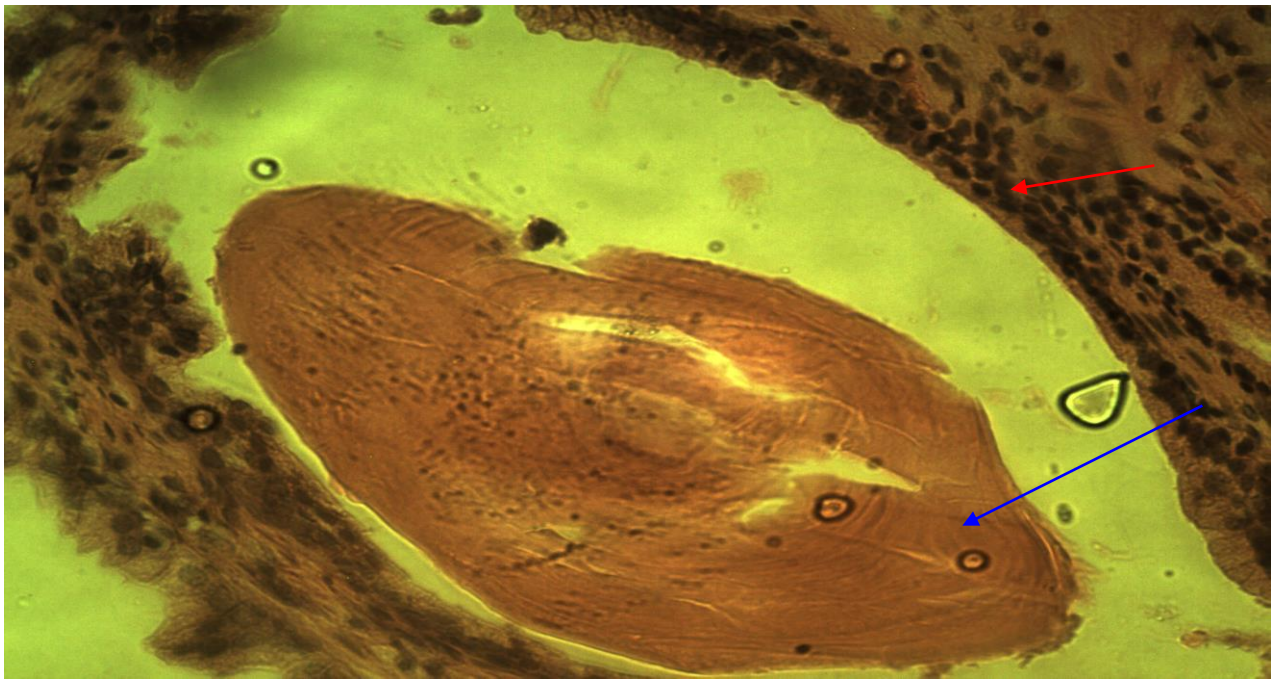


Fig (4) Nodular hyperplasia in the prostate : there are a numbers of acini and abundant fibromuscular stroma →, the acini contain papiliform structure of epithelium growth toward the lumen →, there are pale staining secretion and chronic inflammatory cells → in some acini . (250x.H&E)



Fig(5)Show benign nodular hyperplasia →with large exudation in the lumen of acini

(250x.H&E)



Fig(6)Show benign nodular hyperplasia → with large stones in the lumen of acini.

with mild to moderate inflammation. (280x.H&E)

Squamous metaplsia (carcinoma)was represented by 13(15.8)cases which shows several enlarged acini and filled with squamous epithelium in which small foci of keratin formation .The stroma appear abundant with increased in fibrous tissue, fig(7).

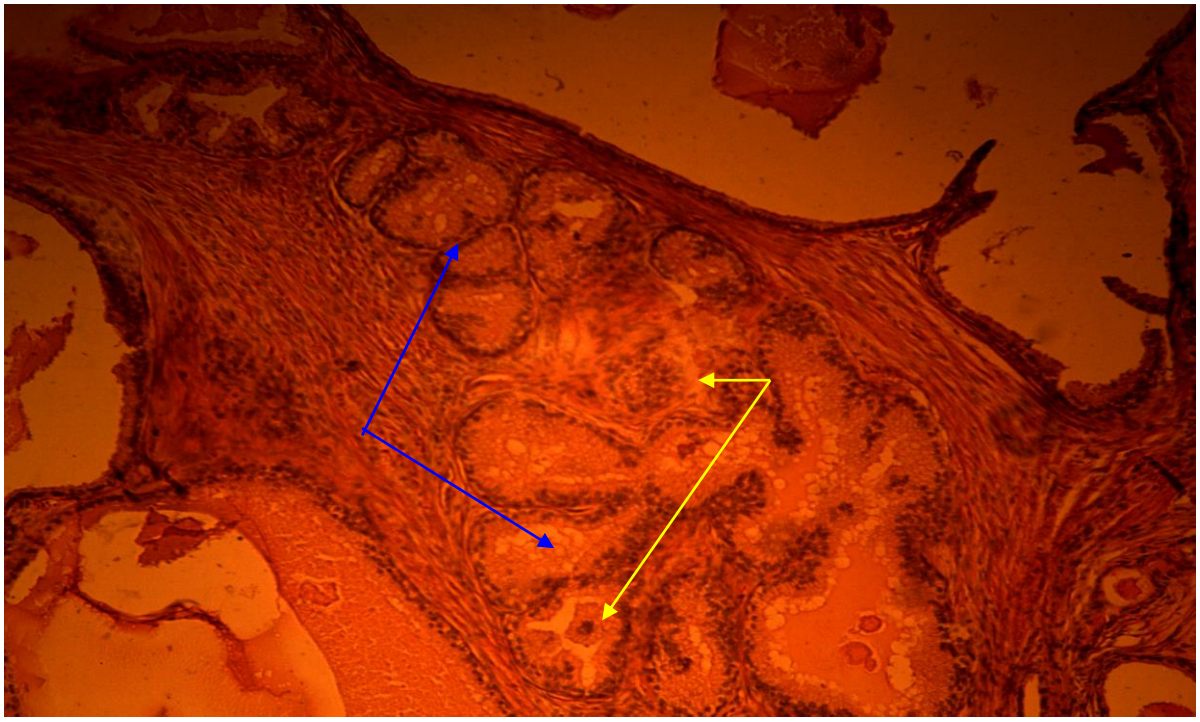
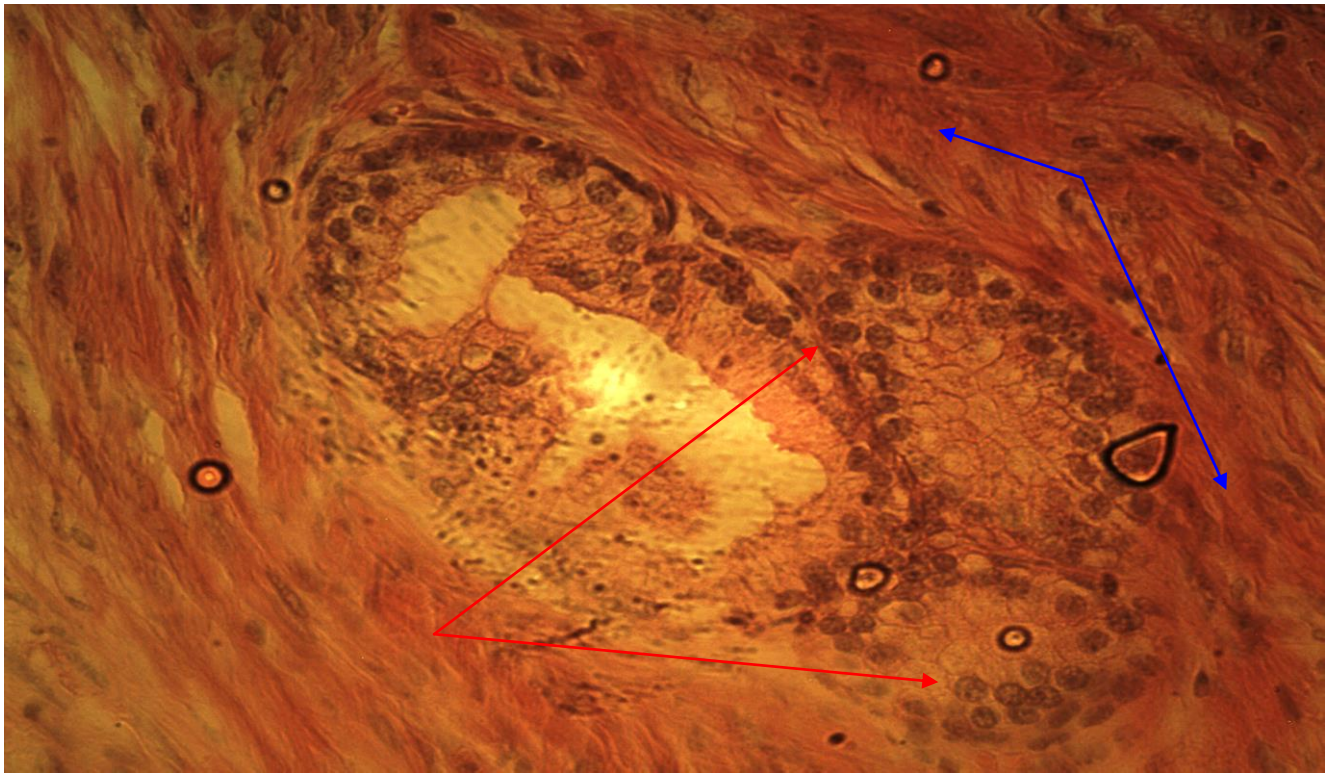


Fig (7) Squamous metaplsia(carcinoma): shows several enlarged acini filled with filled with squamous epithelium , small foci of keratin found inside the acini . (250x.H&E)

Infract and squamous metaplsia were represented by 8(9.7) cases which may be occur from vascular occlusion in the prostate . the blood vessels are greatly dilated and there is hemorrhage into the stroma .The acini of the prostate observed lined with thick layer of squamous epithelium , and some of acini contain proliferated cells that filled the lumen .The metaplastic epithelium resembles squamous epithelium but, the intracellular bridges not present and keratin is not formed , Fig(8).



Fig(8) Infract squamous metaplsia: The blood vessels are greatly dilated and there is hemorrhage into the stroma , the acini of the prostate were observed lined by thick layer of epithelial cells resembling squamous epithelium and filled the lumen of acini (380 x.H&E). .

DISCUSSION

Carcinoma of the prostate is a common incidental finding at autopsy; it is present in 20–30% of men over 50 years and over 70% of men at 80 years of the age.

According to the data that were collected from (82) patient's males infected with the prostate tumors found high incidence of the disease in ages between (71-80)years , while the lowest incidence was found in ages between (51-60)years.

This results agreed with (10)that Said the incidence of the prostatic tumors increases from(20%) in men in the fifty years of old to approximately (70%) in men between the ages of 70 and 80 years. Prostate cancer incidence strongly increases with age and based on Surveillance statistics was performed from 2000-2008, the

incidence rate of prostate cancer is 9.2/100,000 for men aged 40-44 years, and this rate increases sharply to 984.8/100,000 in men aged 70-74 years. (3).

The vast majority of these cancers are not detected during life because the cancer often clinically silent particularly during the early stages of the disease and approximately 10% of localized carcinomas are discovered unexpected during histological examination of the prostate tissues (15) .

Adenocarcinoma was observed the commonest type of the prostate cancer in our study the performed in Missan province, this result agreed with (1) that said the adenocarcinoma consider the commonest type in prostate cancer and form about (70-80%) which arise in peripheral part of prostate gland and hence the tumor maybe palpable as irregular hard nodules by rectal digital examination .

Histologically the adenocarcinoma characterized by presence small malignant glands crowded between larger benign glands, these malignant glands lack the branches and papillary folds (11).

(16) said that the adenocarcinoma of the prostate gland maybe spread rapidly out of the gland especially to the adjacent lymph nodes .Also the adenocarcinoma can be invade the seminal vesicles and urinary bladder .

Prostatic adenocarcinoma may also arise from prostatic ducts, and the ductal adenocarcinoma that arising in peripheral ducts may present in a similar to ordinary prostate cancer, whereas these arising in the larger periurethral ducts may show signs and symptoms similar to urethral cancer , causing hematuria and urinary obstructive symptoms (17) .

The benign nodular hyperplasia were found in(34%) of all cases that examined in this study. (1) referred that the nodular hyperplasia of the prostate is most common in older men and characterized by proliferation of both epithelial and stromal elements with enlargement of the gland which can lead to urinary tract obstruction.

(18) said that the androgens and estrogen play a synergistic role in development of the nodular hyperplasia ,where dihydrotestosterone (DHT) that derived from

testosterone through the action of (5α-Reductase) and it's metabolite appear to be the major hormonal stimuli for nodular and stromal proliferation in the patient with nodular hyperplasia.

The nodular hyperplasia of the prostate becomes clinically manifested in older men at a time when testosterone levels are either stable or have be gun to decline.Moreover,the administration of testosterone does not exacerbate preexisting nodular hyperplasia (19). Nodular hyperplasia with larger prostatic stone also observed in this study ,where the large stones accumulated in the lumen of acini with mild to moderate inflammation.

(20) said prostatic stones can occur when the prostate secretions have sat in the prostate for short time period especially in old ages , thus these secretions can get stucks in the gland , and form around body like apparel and become calcified like stones, and the prostatic stones size increase with increasing the age ,alos added the pain in lower back and lower stomach are the common signs of the prostatic stones , pain in the tip of the after ejaculation ,burning during urination ,fever and chills are frequently symptoms of prostate stone. However, pain is not felt until the stones have grown large and required surgery for removal. But, (21) were refereed that importance of prostate stones and their relationship to the inflammation have not been sufficient investigated to date. However , a recent ultrasound studies suggested that the larger –size prostate stones could be related to clinical prostatitis.

Squamous metaplsia(Carcinoma)alos was observed in 13(15.8%)cases this study ,which characterized by enlarged acini filled with squamous epithelium in which small foci of keratin formation . (1) and 16)referred that the squamous metaplsia of the prostate tumors usually appear moderately differentiated with nests and sheets of tumor cells with focal keratin formation. (18) said treated the adenocarcinoma of the prostate with estrogen as hormonal therapy, this therapy tends to cause squamous metaplsia in the normal epithelial glands.

Infract and squamous metaplsia was found in this study and represented with 8(9.7%) cases. (1) referred that the infract and squamous metaplsia is one types of prostate tumor characterized by infract from vascular occlusion which may be occur as a result of infection ,traumatic lesions and catheterization .

The mechanism for prostatic infarcts is still unknown. Earlier, experts suspected that prostatic infection or trauma resulting from an indwelling catheter, cystitis, or prostatitis may have resulted in thrombosis of the intra prostatic arteries (9).

(4) studies were found no relationship between prostatic infarcts and hypertension, diabetes, atherosclerotic coronary vascular disease, recent surgery, or steroid use.

Most prostatic infarcts are clinically silent, and their importance is minimal as compared with vital organ infarcts like those of the heart and brain,and Patients with a prostatic infarct sometimes have symptoms of acute urinary retention (15).

Histologically infarct prostatic metaplsia tissue showing a mildly dilated and distorted lumen if the glands and filled with cellular debris and neutrophils surrounded by dense fibrotic stroma (٢2).

Conclusion of this study a higher incidence of prostate cancers were confirmed in ages between (60- 80)years, the commonest types of prostate tumors that observed in this study were adenocarcinoma and benign nodular hyperplasia, large size of prostate stones may be cause mild to moderate inflammation.

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دراسة مرضية لأورام البروستات في محافظة ميسان
Pathological study of the prostate tumors in Missan governorate

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الخلاصة

سرطان البروستات من أكثر الأمراض التي يعاني منها الذكور ، ويعتبر ثاني انواع السرطانات التي تسبب الوفاة عند الرجال الذين تتجاوز أعمارهم الخمسين سنة بعد سرطان الرئة.

أجريت هذه الدراسة للفترة ما بين (الأول من تشرين الأول – ٢٠١١ – ولغاية الأول من نيسان - 2012) حيث تم جمع العينات النسيجية من (٨٢) مريض مصاب بسرطان البروستات تتراوح أعمارهم مابين (٤٠-٩٠) سنة وأخذت العينات النسيجية بعد إجراء العمليات الجراحية مباشرة وكذلك من مختبر التقنيات النسيجية في مستشفى الصدر العام في محافظة ميسان ، بعد ذالك حفظت العينات النسيجية بالفورمالين (١٠%) وصبغت بصبغة الهيماتوكسلين –ايوسين وبحسب طريقة الفحص النسيجي المرضي.

من خلال تحليل بيانات التاريخ المرضي والفحص النسيجي وجد أن أعلى نسبة إصابة بسرطان البروستات كانت للأعمار مابين (71-80) سنة وقد تمثلت بنسبة (٣٤,١%) ، تلتها الأعمار مابين (٦١-٧٠) وبنسبة (٢٦,٨%) ،والأعمار مابين (٥١-٦٠) كانت بنسبة(٢١,٩%) .

نتائج الفحص النسيجي أظهرت أن أكثر الحالات المصابة بأورام البروستات كانت من نوع سرطان البروستات ألغدي وبنسبة (% 40.2) ، بينما فرط التنسج العقدي الحميد للبروستات وجد بنسبة (34%)، أما فرط التنسج الحرشفي للبروستات فقد وجد بنسبة (% 18.8) ،اما اقل نسبة إصابة فقد سجلت لأورام فرط التنسج الحرشفي الاحتشائي لغدة البروستات وبنسبة (7.5%) من جميع الحالات المشخصة .

نستنتج من هذه الدراسة ان أعلى نسبة إصابة بسرطان البروستات تنحسر للأعمار مابين (٦٠-٨٠) سنة ،والسرطان ألغدي للبروستات هو الأكثر شيوعا من أنواع السرطانات التي تصيب البروستات ،كما أظهرت الدراسة انه ربما تكون هنالك علاقة بين وزيادة حجم حصى البروستات وتكرار حدوث التهابات البروستات الخفيف والمتوسط.