RESULTS

The study included 30 patients (25 males and 5 females) with age ranging from 40 to 75 years old. They were presenting with bladder masses. MRI was done for all patients for evaluation and staging.

Table (8): Clinical history

	No of cases	***Percent***
Patient sex		
Male	25	83.3%
Female	5	16.7%
Clinical presentation		
- Heamaturia	29	96.7%
- Necroturia	14	46.7%
- Dysuria	7	23.3%
- Frequency	12	40%
Bilharzial affection		
- Positive	18	60%
- Negative	12	40%

Hematuria was the most common clinical preventative (96.7% of cases). Bilharzial affection was found in 60% of the study group.

Table (9): Age and sex distribution

age	***male***	***female***	***Total No of patients***
40	3	1	4
50	9	3	12
60	9	1	10
70	4	0	4
Total	25	5	30

Table (10): Site of the tumor

	No. of cases	*Percent*
Fundal	11	36.6%
Basal	9	30%
Lateral wall	5	16.7%
Fundal + Lateral wall	2	6.7%
Basal + Lateral wall	3	10%

The most common site of the tumor was the fundus representing (36.6) of cases in the group study.

Table (11): Histopathological type of the tumor

Histological type	*No. of patients*
Transitional cell careinorma	20
Squamous cell carcinoma	9
No tumor	1
Total	30

Table (12) Pathological examination

Histological type	*On examination*	*No. of Cases*
Transitional cell careinorma	Papillary or flat tumor growth of variable size with less extravehicular component	20
Squamous cell carcinoma	Large sessile masses with predominant extravesical component	9
No tumor	-	1
Total	-	30

Table (13): Pre-contrast MRI finding

	No of cases	*Percent*
T_1WI_s		
• Muscle wall Invasion		
- Positive	12	40%
- Negative	18	60%
• Peri-vesical fat Invasion		
- Positive	12	40%
- Negative	18	60%
• Lymph node Involvement		
- Positive	5	16.7%
- Negative	25	83.3%
T_2WI_s		
• Muscle invasion		
- Positive	22	73.3%
- Negative	8	26.6%
• Peri- vesical fat invasion		
- Positive	13	43.3%
- Negative	17	56.7%
• Lymph node involvement		
- Positive	5	16.7%
- Negative	25	83.3%

In T1WI Muscle wall invasion was detected in 12 cases (40% of cases) and Peri-vesical infiltration was confirmed in 12 cases (40% of cases lymph node involvement was detected in 5 cases (16.74) of cases.

In T_2WI imaging muscle wall invasion was detected in 22 cases (73.3% cases). Peri-vesical infiltration was observed in 13 cases (43.3%) of cases. Detection of lymph node involvement was established in 5 cases of the study group (16.7% of cases).

Table (14): Contrast-enhanced of MRI finding

	No of cases	*Percent*
• Muscle wall invasion		
- Positive	26	86.7%
- Negative	4	13.3%
• Peri-vesical fat invasion		
- Positive	16	53.3%
- Negative	14	46.7%
• Lymph node involvement		
- Positive	7	23.3%
- Negative	23	76.7%

With the use of contrast–enhanced MRI imaging. Muscle wall invasion was detected in 26 cases (86.7%) off cases) and Peri-vescial fat infiltration was detected in 16 cases (53.3% of cases). Lymph node involvement 7 cases.

Table (15): Statistical evaluation of muscle wall invasion by MRI

	Sensitivity	*Specificity*	*Accuracy*
MRI T_1 weighted image	39.3%	50%	40%
T2 weighted image	78.6%	100%	80%
T1 weighted image with contrast	100%	100%	100%

Contrast enhanced MRI showed 100% accuracy in detection of muscular wall invasion wall sensitivity of 100% and specifically of 100%.

Table (16): Statically evaluation of Peri-vesical fat invasion by MRI

	Sensitivity	***Specificity***	***Accuracy***
MRI T_1WI_s	55.6%	83.3%	66.7%
T_2WI_s	66.7%	91.7%	76.7%
T1 weighted image with contrast	94.4%	100%	96.7%

T1WI showed 66.7% accuracy in detection of peri-vesical invasion with 55.6% sensitivity and 83.3% specificity , T2WI showed 76.7% accuracy detection of peri-vesical fat invasion with 66.7% sensitivity and 91.7% Specificity However, contrast enhanced MRI showed 96.7% accuracy in detection of peri-vesical invasion with sensitivity of 94.4% and specificity of 100%.

Table (17) : Statistical evaluation of lymph node involvement by MRI

	Sensitivity	***Specificity***	***Accuracy***
MRI T_1WI_s	66.7%	91.7%	86.7%
T_2WI_s	66.7%	91.7%	86.7%
T1 weighted image with contrast	100%	95.8%	96.7%

None contrast T_1 and T_2 weighted imaging showed 86.7% accuracy in detection of lymph nodes involvement with sensitivity of 66.7% and specificity of 91.7%.

T1 weighted image with contrast improved accuracy up to 96.7% with sensitivity 100 % and specificity of 95.8% .

Table (18): Staging accuracy of different T-stages by MRI examination

Stage	*No of cases*	*No of competes type case*	*No of over staged case*	*No of under staged cases*	*Accuracy*
T1	-	-	-	-	-
T2	-	-	-	-	-
T3a	8	8	-	-	100%
T3b	12	11	1	-	92%
T4a	5	4	-	1	90%
T4b	5	5	-	-	100%

MRI showed best accuracy rates in stages T3a and T4b (100%) However, accuracy rates in T3b and T4a (92%), (90%) respectively.

Table (19): Staging accuracy of T-stage by MRI

Stage	*No of competes type case*	*No of over staged cases*	*No of under staged cases*	*Accuracy*
MRI	28	1	1	93.3%

MRI showed staging accuracy 93.3 for T-staging of bladder carcinoma

Table (20): Staging accuracy of different N-stages by MRI

Stage	*No of cases*	*No of completely stays*	*No of stayed cases*	*No of under staged cases*	*Accuracy*
MRI					
N0	23	23	-	-	100%
N1	6	5	1	-	83.3%
N2	1	1	-	-	100%

- MRI examination showed 100% accuracy in excision of nodal involvement and 83% accuracy in detection of antirational involvement.

Table (21): Staging accuracy of N-stage by MRI

Stage	*No of competes type cases*	*No of stayed cases*	*No of under staged cases*	*Accuracy*
MRI	29	1	1	96.7%

- MRI showed staging accuracy 96.7% for Nodal. Staging of bladder cases.

T-Test

Group Statistics

	VAR00002	N	Mean	Std. Deviation
ADC	cases	30	1.0633	.3035
	control	10	1.8300	.5251

Independent Samples Test

		t-test for Equality of Means	
		t	p
ADC	Equal variances assumed	-5.702	0.001***

There is highly significant difference between cases and control as regard ADC value

ROC Curve

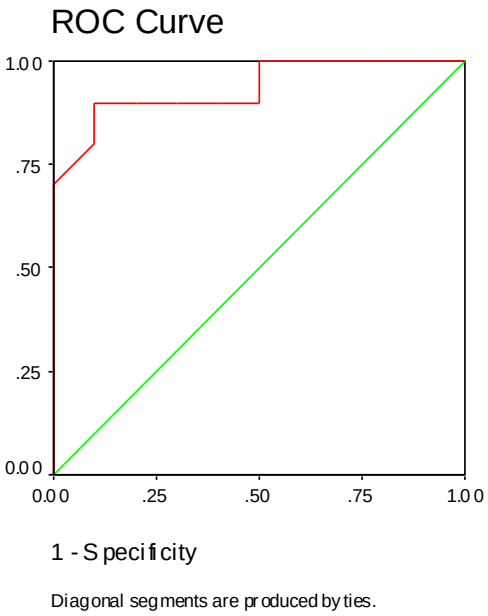
Receiver operating curve to detect cut off point for diagnoses or differentiate between cases and control

Case Processing Summary

VAR00002	Valid N (listwise)
Positive[a]	30
Negative	10

Smaller values of the test result variable(s) indicate stronger evidence for a positive actual state.

a. The positive actual state is cases.



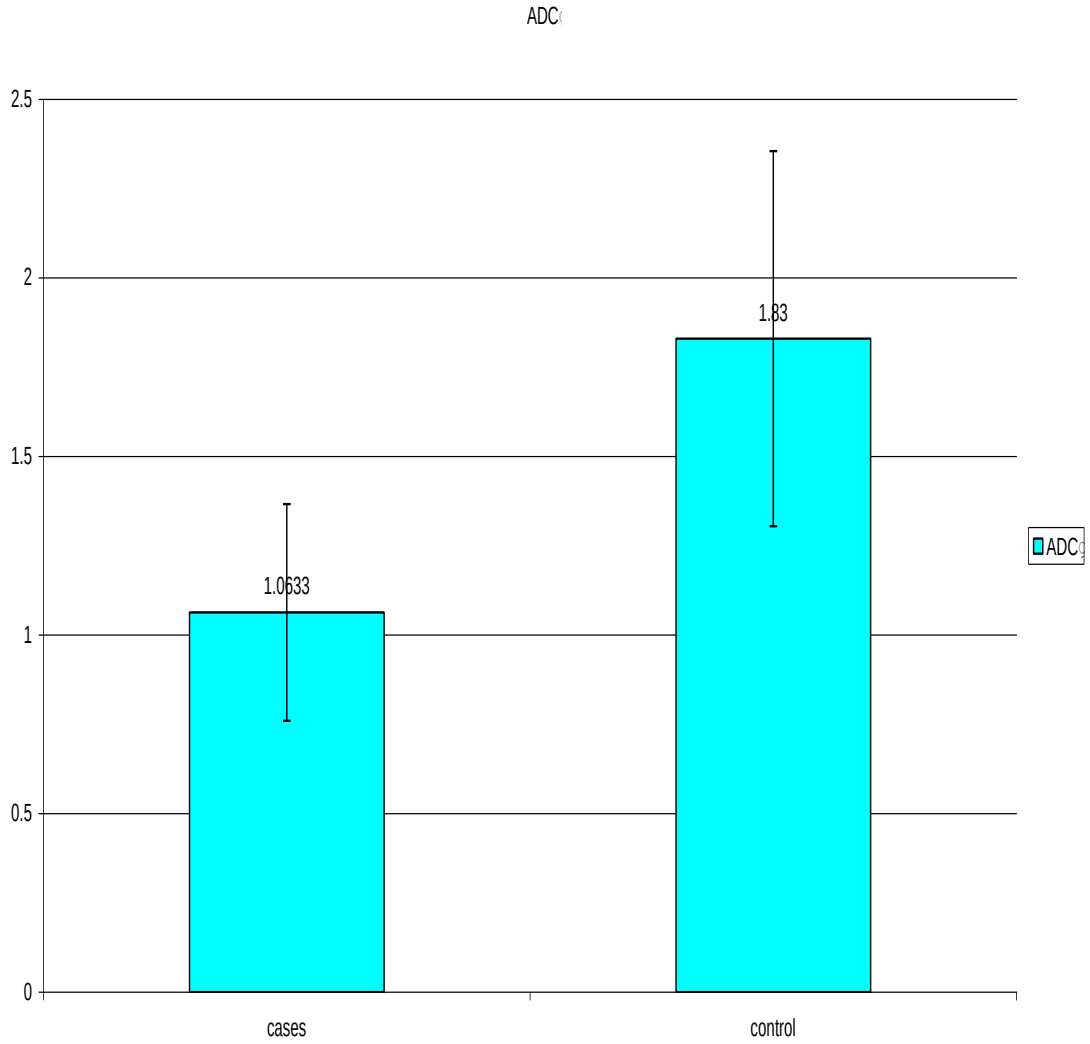
- Area under the curve = 0.95
- Cut off value 1.215 with

Sensitivity	:	0.97	[0.91; 0.99[
Specificity	:	1.00	[0.95; 1.00[
PPV	:	1.00	[0.95; 1.00[
NPV	:	0.9	[0.91; 0.99[
Accuracy	:	0.98	[0.95; 1.00[

Coordinates of the Curve
Test Result Variable (s) : ACD

Positivist if less than or equal To[a]	Sensitivity	Specificity
1.2150	97.000	100%

The test result variable(s): ADC has at least one tie between the positive actual state group and the negative actual state group.



There is highly significant difference between cases and control as regard ADC value

Diffusion weighted MRI was carried upon 30 patients with bladder mass lesion after MRI examination :

The study revealed :

- One false positive case by MRI examination.
- Two cases were positive prevesical fat infiltration by diffusion weighted MRI were negative.
- A case of bladder mass lesion with multicentric origin by MRI examination appeared with single origin by diffusion weighted MRI .