Results

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A total of 40 patients were examined in this study, 25 males and 15 females.

Age

The age ranges from 21 year to 75 year with mean age 43.8 years and the 5th decade shows the highest peak "27.5% of cases" (table 1).

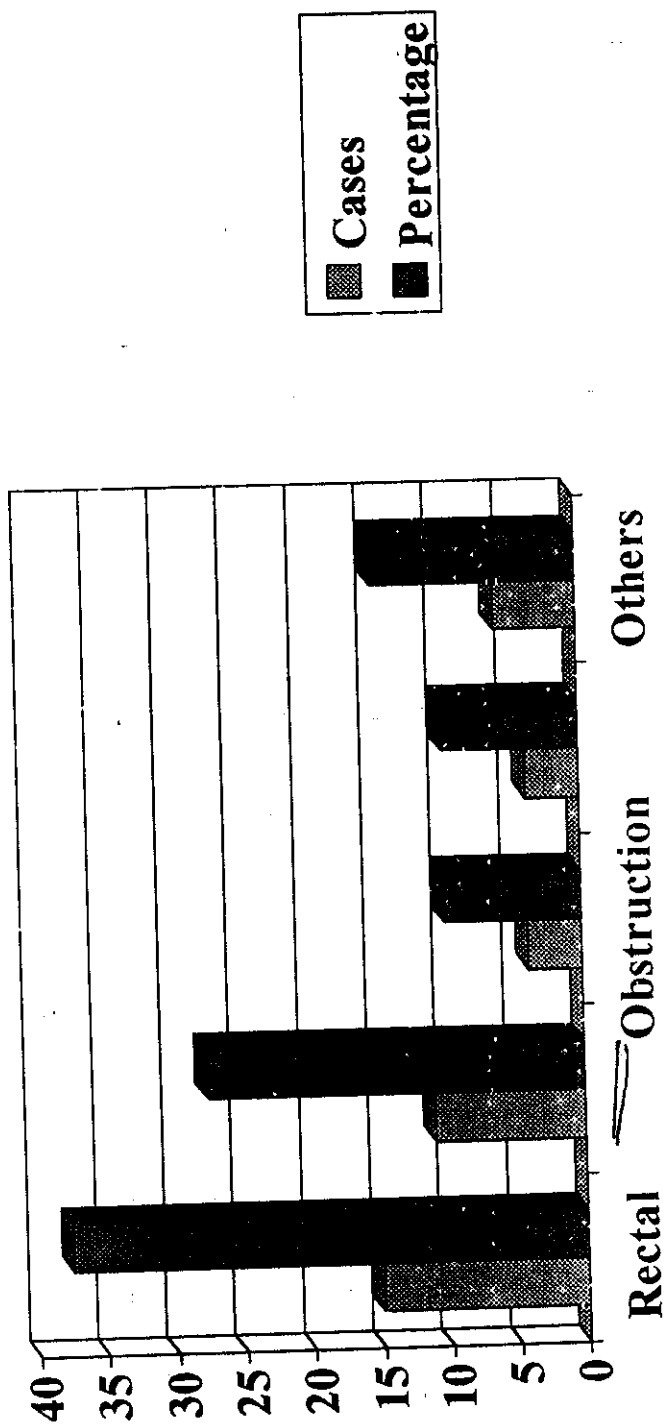
Age range	Number	Percentage
Under 30	8	20%
31-40	5	12.5%
41-50	9	22.5%
51-60	11	27.5%
61-70	5	12.5%
71-80	2	5%

Table 1: ages of the examined patients.

Symptomatology:

The main complaint of the patient was bleeding per rectum in 15 cases (fig 1), change of the bowel habits in 11 cases, obstruction of large

Fig 1: Main complain of patient at time of presentation



bowel in 4 cases, weight loss in 2 cases, prolapsed mass during defecation in 1 case, anterior abdominal wall mass along the operative scar in 1 case, recto-vaginal fistula in 1 case, abdominal swelling in 1 case, 4 cases were asymptomatic under follow up after surgical operations of colorectal neoplasm (table 2).

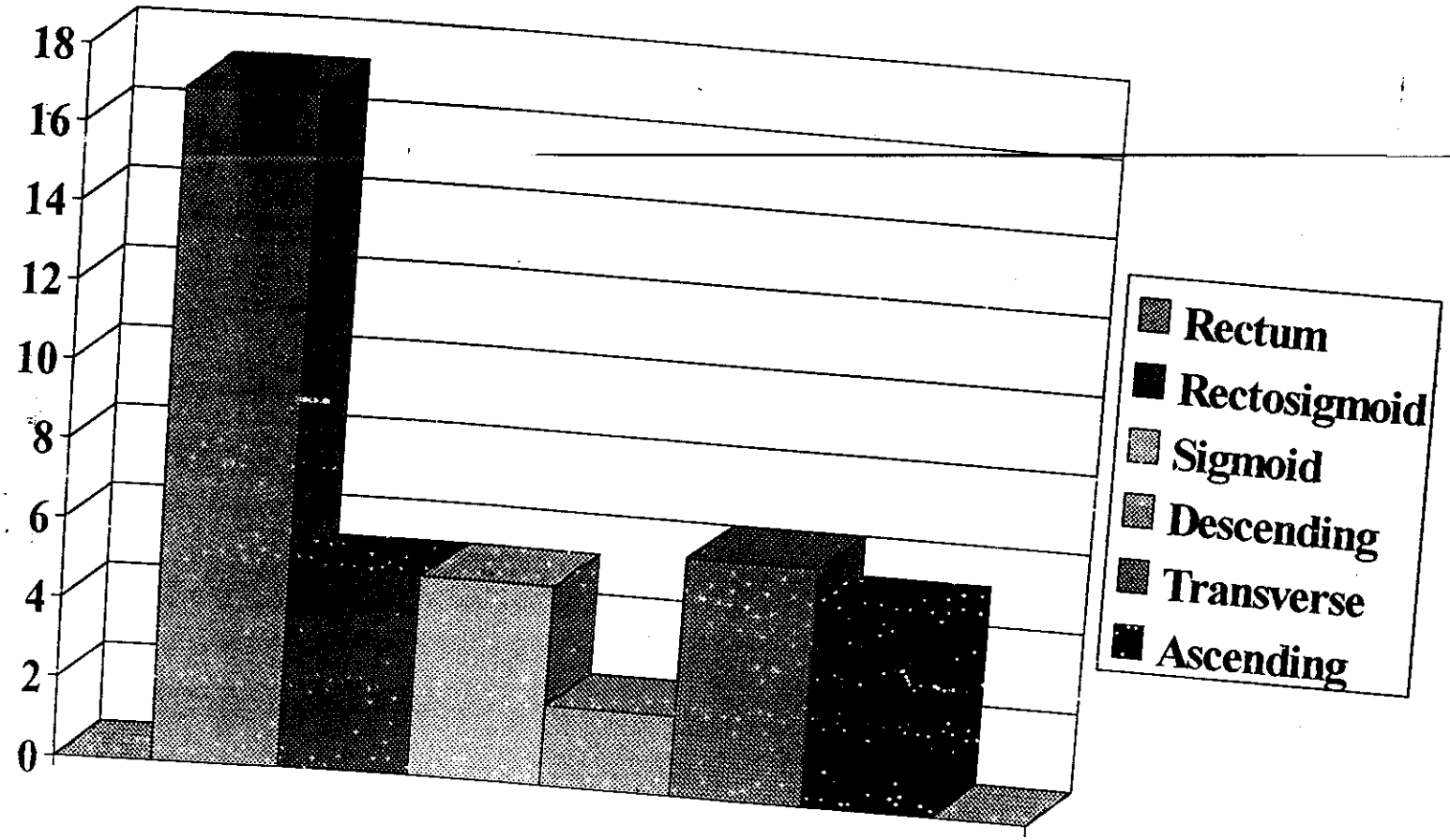
Symptom	No of cases	Percentage
Rectal bleeding	15	37.5%
Change of bowel habits	11	27.5%
Obstruction	4	10%
Post-operative follow up	4	10%
Others	6	15%

Table 2: Main presenting complains.

Site

The majority of the lesions were rectal in 17 cases, rectosigmoid 5 cases, sigmoid 5 cases, ascending colon 5 cases, transverse colon 6 cases, and the descending colon 2 cases (fig 2).

Fig 2: Distribution of the lesions



Shape

The lesion involved the entire circumference of the bowel in 23 cases, it was semicircular in 4 cases, it was located in the anterior wall in 3 case, the posterior wall in 2 cases, forming soft tissue mass in 8 cases.

Size

The lesion measures more than 8 cm in 20 cases, 4-8 cm in 10 cases, and 2-4 cm in 5 cases.

Pathology

Pathological examination showed 36 cases of adenocarcinoma, 2 cases of malignant melanoma, 1 case of squamous cell carcinoma of the balder infiltrating the rectum, and 1 case of crhon's disease.

Radiological results

In both primary and recurrent cases the U/S was able to detect the primary site of colorectal lesions (T) in 30 cases (true positive results), true negative results were 5 cases, false negative results in 4 cases, and false positive result in 1 case. While CT was able to detect 31 cases correctly (true positive results), true negative results in 5 cases, false negative result in 3 cases and false positive result in 1 case (table 3).

	U/S Cases	U/S Percent	CT Cases	CT Percent
True positive	30	75%	31	77.5%
True negative	5	12.5%	5	12.5%
False negative	4	10%	3	7.5%
False positive	1	2.5%	1	2.5%
Sensitivity		88.2%		91.2%
Specificity		83.3%		83.3%
Positive predictive value		96.8%		96.9%
Negative predicative value		55.6%		62.5%
Accuracy rate		87.5%		90%

Table 3 Detection of colorectal neoplasm by U/S and CT.

33 cases out of all patients were treated surgically while the remaining 7 cases received chemotherapy and/or radiotherapy only.

In the 33 cases that were subjected to surgical treatment, the pathological staging that was done presented T3 in 25 cases, T2 in 2 cases, T4 in 5 cases, and 1 case showed no malignancy (Crhon's disease).

In pathologically proven T3 cases (25 cases), the U/S & CT correctly diagnosed and made the proper staging of the primary site (T) in 22 and 23 cases respectively (Fig 3).

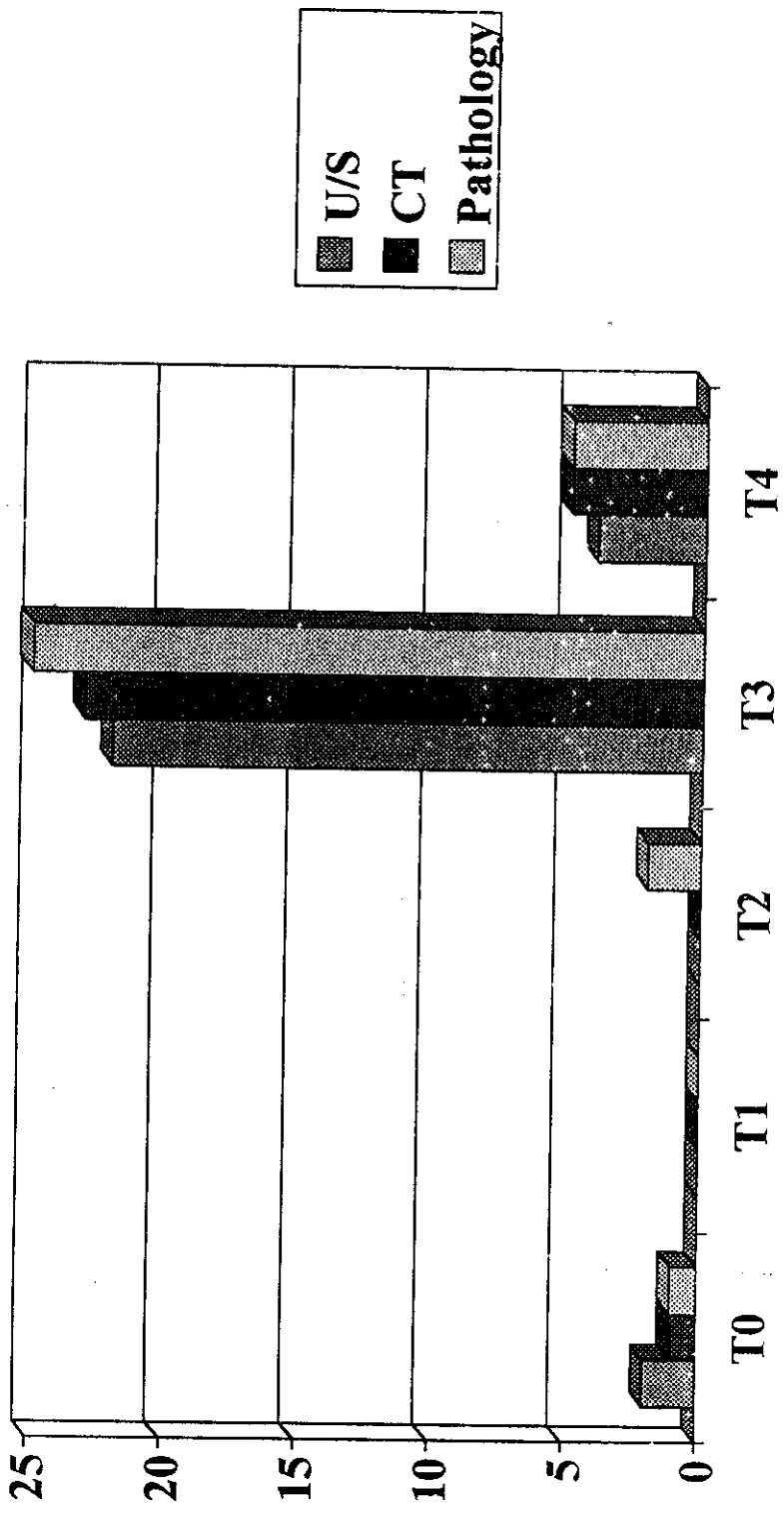


Fig 3: Comparison of staging of the tumor (T) between U/S, CT and pathological examination in surgically operated cases

In pathologically proven T2 cases (2 cases), both are incorrectly staged by U/S and CT, they were falsely staged as T3 & T4.

In pathologically proven T4 cases (5 cases), 4 cases were correctly staged by U/S and 5 cases were correctly staged by CT.

Only one case was diagnosed as colonic malignancy stage T3 and proved pathologically to be an inflammatory bowel disease (Crhon's disease).

The 7 cases that were treated by chemotherapy and/or radiotherapy only with no surgical interference, both U/S and CT studies show no regional recurrence (T0) in 5 cases. Colorectal mass with surrounding infiltrations (T4) was detected in 2 cases; prostatic infiltration was diagnosed by both U/S and CT in 1 case and in the other case, pelvic wall infiltrations was only detected by CT.

Perirectal and pericolic fat infiltration was pathologically proved in 23 cases. U/S correctly detects fat infiltrations in 19 cases, 3 cases of false positive results and 4 cases of false negative results. While CT correctly detects infiltrations in 20 cases, 3 cases shows false negative result and 4 cases of false positive result (table 4).

	U/S Cases	U/S Percent	CT Cases	CT Percent
True positive	19	57.8%	20	63.6%
True negative	7	21.2%	6	18.2%
False negative	4	12.1%	3	9.1%
False positive	3	9.1%	4	12.2%
Sensitivity		82.6%		87%
Specificity		70%		60%
Positive predictive value		86.4%		83.3%
Negative predicative value		63.6%		66.7%
Accuracy rate		78.8%		78.8 %

Table 4 Detection of fat infiltration with U/S and CT in comparison to post-operative pathological findings.

The most frequent sites of distant metastatic deposits (M) were the liver (12 cases) anterior abdominal wall (3 cases), omental implantations (3 cases). (Fig 4).

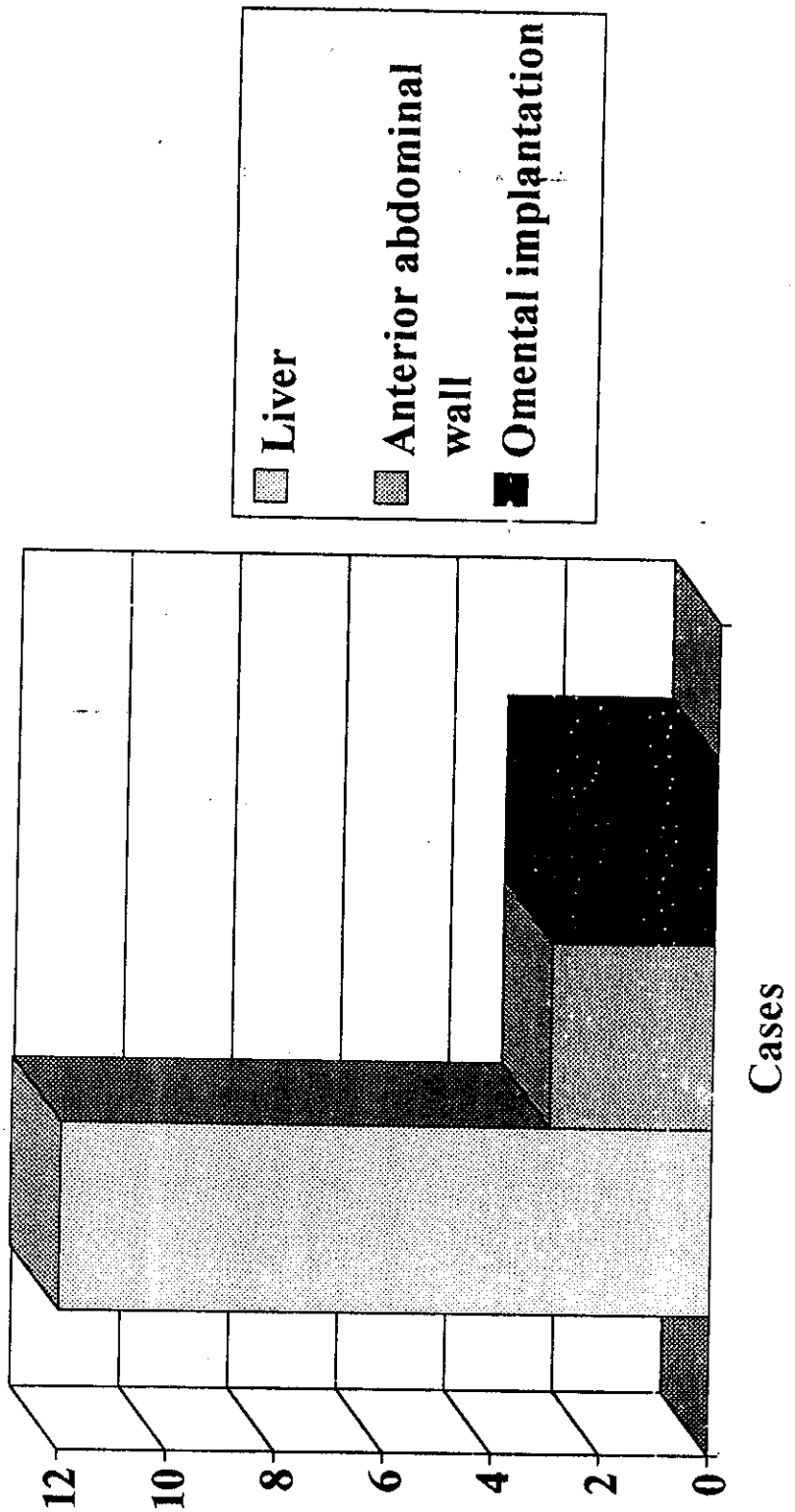


Fig 4 Most frequent sites of distant metastasis (M) in cases of colorectal carcinoma

Perirectal and pericolic lymph nodes were found in 20 cases in pathological examination. U/S can detect perirectal and peri colic lymph nodes in 11 cases, 9 cases were false negative and one case was false positive. While CT can detect nodes in 15 cases, 5 cases were false negative and 4 cases were false positive (fig 5) (table 5).

	U/S Cases	U/S Percent	CT Cases	CT Percent
True positive	11	33.3%	15	45.5%
True negative	12	36.7%	9	27.3%
False negative	9	27.3%	5	15.2%
False positive	1	3%	4	12.1%
Sensitivity		55%		75%
Specificity		92.3%		69.2%
Positive predictive value		91.7%		78.9%
Negative predicative value		27.1%		64.3%
Accuracy rate		69.7%		72.7%

Table 5 Detection of perirectal and pericolic lymph nodes with U/S and CT in comparison to post-operative pathological findings.

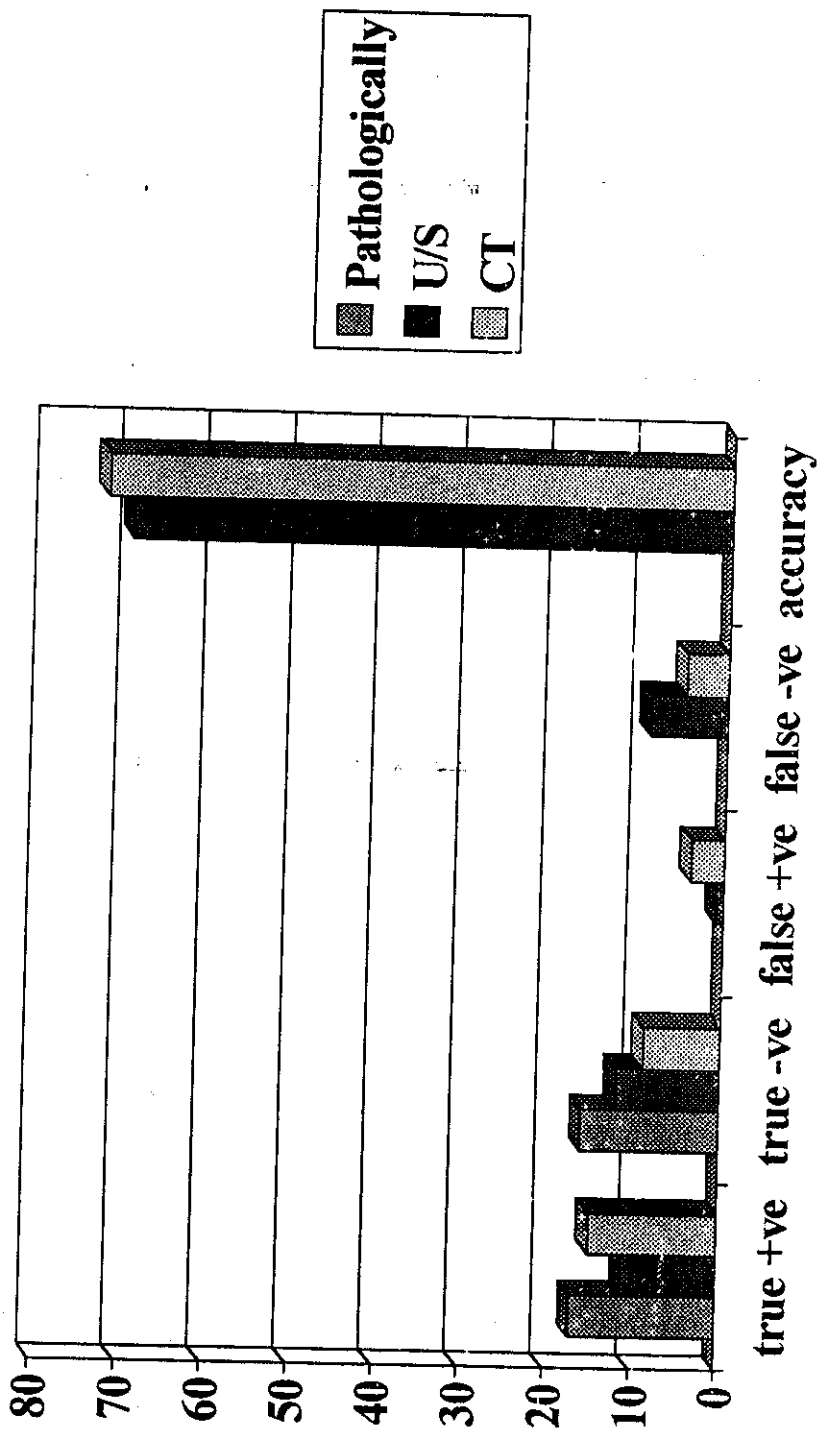


Fig 5 detection of perirectal and pericolic nodes.

The over all TNM staging by U/S and CT correlated with pathological results are shown in (fig 6) (table 6).

	U/S Cases	U/S Percent	CT cases	CT percen
Correct staging	19	57.6%	22	63.6%
Incorrect staging	14	42.4%	11	33.3%
up staging	2	6.6%	4	12.1%
down staging	12	36.4%	7	21.2%

Table 6: TNM staging by US and CT.

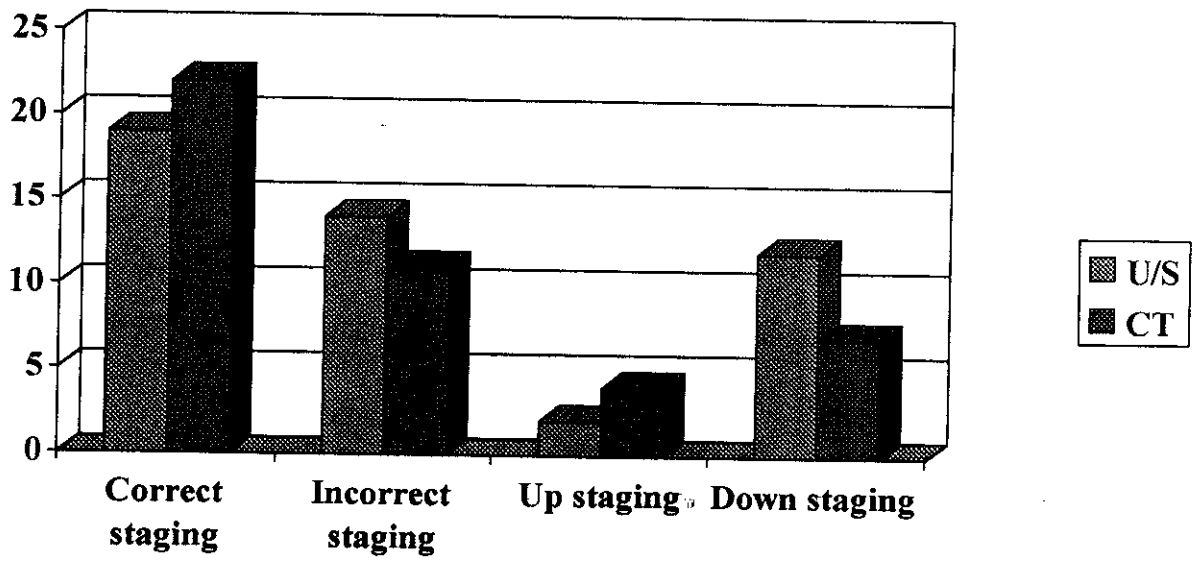


Fig 6: Correlated TNM staging by U/S and CT