Results

This work is a prospective study for patients with anal fistula.

A total of 50 patients under went EUS (41 men, 9 women; mean age 37 years; range 14-60 years).EUS imaging was performed at an average of 77 days (range 4-150 days) before surgery. At preoperative EUS19/50 patients had a simple fistula, 21 had a complex fistula and 10 recurrent fistula.

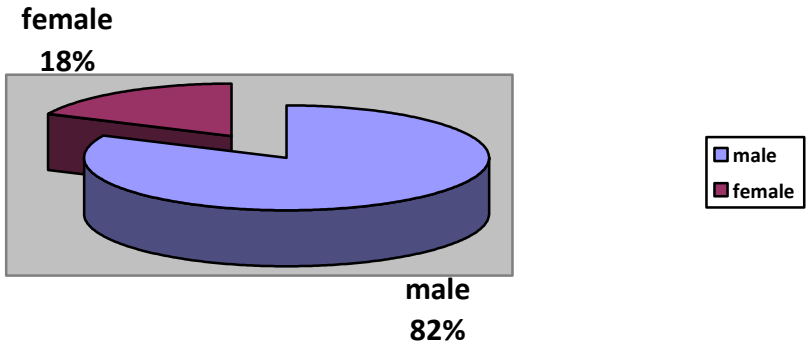

Fig (33) Gender distribution.

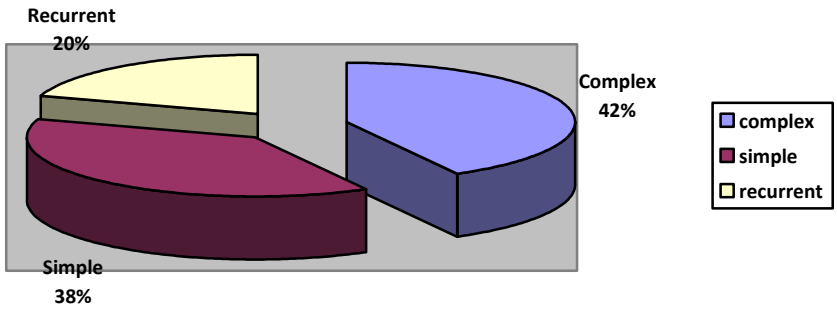

Fig (34) Types of fistula by preoperative EUS.

Ultrasound

On assessing the internal opening was diagnosis with 25/50 (50%) and 23 of them (92%) were confirmed by surgery.

AES assessment of the presence or absence of the internal opening was accurate in 40/50 (80%) patients. False negative findings were revealed in 8/50 (16%) cases of fistula-in-ano (Table 3).

These were high transsphincteric in five cases and extrasphincteric in three. The explanation for the two flase positive findings was that the internal opening was found to be closed by fibrosis at surgery.

Although the primary track was identified intraoperatively in all 50 patients, in 11/50(22%) cases it could not be visualised by AES. Regarding the accuracy of AES in classifying fistula-in-ano (Table 4).

With AES, one or more secondary tracks were identified in 21/50 (42%) patients. It is notweorthy that there was only one false negative and one false positive finding (Table 3).

Abscesses were detected with AES in 17/50(34%) patients, and 15(88.24%) of them were confirmed by surgery. Two undetected abscesses during AES were identified intraoperatively, and five abscesses seen at AES were not observed at surgery (Table3).

Horseshoe fistulas were identified with AES in 9/50 (18%) patients, and 8 (88.9%) of them were confirmed by surgery. AES assessment of the presence of absence of horsehoe fistula was accurate in 43/50 (86%) individuals. False negative findings were noted in 6/50 (12%) cases of horseshoe fistula (Table3), tortuous in four cases and recurrent in eight cases.

In the only false positive case, AES was unable to distinguish postsurgical scar tissue from active fistula.

Table (3) comparison endosonography and surgery in anal fistula

	Internal opening (n50)	Secondary track(n50)	Abscess n(50)	Horse shoe n(50)
True +ve	23	20	15	8
True-ve	17	28	29	35
False+ve	2	1	2	1
False-ve	8	1	4	6
Accuracy	80%	96%	88%	86%
Sensitivity	74.2%	95.2%	78.9%	57.1%
Specificity	89.5%	96.5%	93.5%	85.4%

Table (4) Accuracy of anal endosonography in detecting and defining the primary track of fistula in ano

Primary track	**Surgery**	**Anal endosonography**	**accuracy**
Transphinteric	31	25	80.65%
Intarsphinteric	5	5	100%
Extrasphinteric	11	7	63.64%
Submucosal	3	2	66.67%
Overall	50	39	78%

Fistulography

A total of 50 patients underwent Fistulography.
the procedure was performed on an outpatient basis at an average of 77 days (range 4/150 days) before surgery. On assessing the internal opening were diagnosed 21/50 (42%) cases with fistulography and 19 of them (90.48%) were confirmed by surgery.

Fistulographic assessment of the presence or absence of the internal opening was accurate in 36/50 (72%).False negative findings for the presence of an internal opening occurred in 12/50 (24%) cases of fistula-in-ano (Table5) there were high transsphincteric fistulas in three cases, extrasphincteric fistulas in two and excessive reflux of contrast material from the external opening in two. The explanation for the two false positive finding was that the internal opening was found to be closed by fibrosis at surgery.

Fistulography identified the primary track preoperatively in 46 patients (Table 6).

In 17/50 (34%), FG identified secondary extensions , but intraoperative correllation was lacking in two cases. The intraoperative diagnosis of secondary extensions was refuted by preoperative fistulography. Hence, the accuracy of FG was 90% (Table 5).

Abscesses were observed at fistulography in 23/50(46%) patients, and all of them were confirmed by surgery. Six undetected abscesses during fistulography were shown intaoperatively(Table 5). Similarly, all nine radiological horseshoe fistulas were confirmed at surgery, but three additional cases at surgery were not diagnosed (Table 5).

Table (5) comparison of fistulography and surgery in anal fistula

	Internal opeing	Secondary	Abscess	Horse shoe
True +ve	19	15	17	9
True-ve	17	30	26	37
False+ve	2	2	6	3
Flase-ve	12	3	1	1
Accuracy	72%	90%	86%	92%
Sensitivity	61.3%	83.3%	94.4%	90%
Specificity	89.50%	93.8%	81.3%	92.5%

Table (6) Accuracy of fistulography in detecting and defining the primary track of fistula in ano

Primary track	**Surgery**	**Fistulography**	**Accuracy**
Transphinteric	27	26	96.3%
Intarsphinteric	11	10	90.9%
Extrasphinteric	8	7	87.5%
Submucosal	4	3	75%
Overall	50	46	92%

Combined Ultrasound and fisulography

Table (7) comparison of anal endosonography, anal fistulography and surgery in 50 patients

	Endosonography	Fistulography
Internal opeing		
Accuracy	80%	72%
Sensitivity	74.2%	61.3%
Specificity	89.5%	89.50%
Secondary track		
Accuracy	96%	90%
Sensitivity	95.2%	83.3%
Specificity	96.5%	93.8%
Abscess		
Accuracy	88%	86%
Sensitivity	78.9%	94.4%
Specificity	93.5%	81.3%
Horse shoe		
Accuracy	86%	92%
Sensitivity	57.1%	90%
Specificity	85.4%	92.5%

Endoanal ultrasound and fistulography identified 78% and 92% of primary tracks, 80% and 72% of internal openings, 96% and 90% of secondary tracks , 88% and 86% of abscesses and 86% and 92.5% horse shoe, respectively.