RESULTS

We examined 600 patients suffering from AUB admitted to Benha University hospital, Department of Obstetrics and Gynecology in the period between April 2007 to April 2009 complaining of AUB. Only 50 patients were involved in the study fulfilling the criteria of our study.

No difficulty or problem appeared during performing TVS, SIS or DHS except 18 patients whose cervices were so tight that dilatation with Hegar dilator up to Hegar 6 was performed.

During DHS, the amount of sterile saline was needed for adequate distension of the uterine cavity had a mean of 250 cc ranging from 200 cc to 350 cc so that the problem of fluid over load did not cause a problem to us.

The mean age of the study group was 36.44 years, ranged from 25 to 62 years.

Different patterns of AUB were observed in the study group as shown in table (3). 28cases(56%) were complaining of menorrhagia, 10 cases(20%) were complaining of metorrhagia, 5 cases (10%) were complaining of menomettorrhagia, 3 cases (6%) were complaining of polymenorrhia, 2 cases(4%) were complaining of inter menstrual bleeding and 2 cases (4%) were complaining of post menopausal bleeding.

Table (3): classification of the study group according to pattern of bleeding.

Pattern of AUB	*No. of cases*	*Percent*
Menorrhagia	***28***	***56%***
Metorrhagia	***10***	***20%***
Menometorrhagia	***5***	***10%***
Polymenorrhea	***3***	***6%***
Intermenstrual bleeding	***2***	***4%***
Postmenopausal bleeding	***2***	***4%***
Total	***50***	***100%***

Endometrial thickness was evaluated using TVS and SIS. As regards TVS, endometrial thickness ranged from 2 to 20 mm. the mean endometrial thickness ± SD was 12.296 ± 5.61mm. SIS revealed that endometrial thickness has ranged between 2 and 18 mm with the mean ± SD equal 11.185±4.47 mm.

Comparing the values of endometrial thickness measured by TVS and SIS revealed statistically significant higher values for TVS ($p<0.001$)**,** this comparison is shown in table (4).

Table (4): comparison of the endometrial thickness measured by TVS and SIS in the study group.

	TVS	*SIS*
NO.	***50***	***50***
MEAN	***12.296***	***11.185***
SD	***5.61***	***4.47***
P	***< O,OO1****	

*significant change

There was a strong positive correlation between endometrial thickness measured by TVS and SIS as shown in the scatter diagram and table (5).

Figure(25): Scatter diagram showing the correlation between endometrial thickness as measured by SIS and TVS in the study group(+ve linear correlation).

Table (5): shows a strong positive correlation between TVS and SIS in measuring the endometrial thickness.

Test	***NO.***	***r***	***P***
TVS	***50***	***0,792***	***< 0,01°***
SIS	***50***		

○strong positive correlation

As regards diagnosis of endometrial polypi, TVS has detected polypi in 10 cases out of 50 cases of the study, SIS has detected polypi in 18 cases while DHS has detected polypi in 18 cases of the study group.

Comparing the detection of endometrial polypi between TVS, SIS and DHS; there was a significant difference between TVS and DHS as shown in table (6), a significant difference between TVS and SIS as shown in table (8); but no significant difference between SIS and DHS as shown in table (7) .

Table (6): comparison of detection of endometrial polypi between TVS and DHS in the study group.

	TVS		DHS		Total		
	No.	%	No.	%	No.	%	P*
+ ve	10	20	18	36	28	28	0.0023
- ve	40	80	32	64	72	72	
Total	50		50		100		

*significant change

Table (7): comparison of detection of endometrial polypi between SIS and DHS in the study group.

	SIS		DHS		Total		
	No.	%	No.	%	No.	%	P
+ ve	18	36	18	36	36	36	>0.05
- ve	32	72	32	64	64	64	
Total	50		50		100		

Table (8): comparison of detection of endometrial polypi between TVS and SIS in the study group.

	TVS		SIS		Total		
	No.	%	No.	%	No.	%	P*
+ ve	10	20	18	36	28	28	0.0023
- ve	40	80	32	64	72	72	
Total	50		50		100		

*significant change

Taking DHS as a gold standard in the diagnosis of endometrial polypi, TVS showed a sensitivity 44, 4% and a specificity 93.75%, positive predictive value 80% and negative predictive value 75% while SIS showed a sensitivity 88.8% and a specificity 87.5%, positive predictive value 80% and negative predictive value 93.44% in the diagnosis of endometrial polypi as shown in table (9).

Table (9): sensitivity, specificity, +ve predictive value and – ve predictive value of TVS and SIS in detection of endometrial polypi in relation to hysteroscopic findings in the study group.

	TVS	***SIS***
Total no. of cases	***50***	***50***
True (+) ve	***8***	***16***
False (+) ve	***2***	***4***
True (-) ve	***30***	***28***
False (-) ve	***10***	***2***
Sensitivity	***44,4%***	***88,8%***
Specificity	***93,75%***	***87,5%***
+ve predictive value	***80%***	***80%***
-ve predictive value	***75%***	***93.44%***

As regards the diagnosis of submucous myomas, TVS has detected myomas in 3 cases, SIS has detected myomas in 4 cases while DHS has detected myomas in 3 cases of the study group.

Comparing the detection of submucous myomas between TVS, SIS and DHS; there was no significant difference between them as shown in tables (10, 11,12).

Table (10): comparison of detection of submucous myomas between TVS and DHS in the study group.

	TVS		**DHS**		**Total**		
	No.	**%**	**No.**	**%**	**No.**	**%**	**P**
+ ve	**3**	**6**	**3**	**6**	**6**	**6**	**>0.05**
- ve	**47**	**94**	**47**	**94**	**94**	**94**	
Total	**50**		**50**		**100**		

Table (11): comparison of detection of submucous myomas between SIS and DHS in the study group.

	SIS		DHS		Total		
	No.	%	No.	%	No.	%	P
+ ve	4	8	3	6	7	7	>0.05
- ve	46	92	47	94	93	93	
Total	50		50		100		

Table (12): comparison of detection of submucous myomas between TVS and SIS in the study group.

	TVS		SIS		Total		
	No.	%	No.	%	No.	%	P
+ ve	3	6	4	8	7	7	>0.05
- ve	47	94	46	92	93	93	
Total	50		50		100		

Taking DHS as a gold standard in the diagnosis of submucous myomas, TVS show a sensitivity 66.66% and a specificity 95.45%, positive predictive value 66.66% and negative predictive value 94.66% while SIS showed a sensitivity 100% and a specificity 95.45% positive predictive value 75% and negative predictive value 100% in the diagnosis of sub mucous myomas as shown in table (13).

Table (13): sensitivity, specificity, +ve predictive value and – ve predictive value of TVS and SIS in detection of submucous myomas in relation to hysteroscopic findings in the study group.

	TVS	*SIS*
Total no. of cases	*50*	*50*
True (+) ve	*4*	*6*
False (+) ve	*2*	*2*
True (-) ve	*42*	*42*
False (-) ve	*2*	*0*
Sensitivity	*66,66%*	*100%*
Specificity	*95,45%*	*95,45%*
+ve predictive value	*66,66%*	*75%*
-ve predictive value	*94.66%*	*100%*

D & C biopsy was performed for all patients at the end of DHS. Samples were sent to the pathology department, Benha faculty of medicine. Only one case showed inadequate sample possibly due to a technical error in collecting it and this case was excluded from our study.

According to histopathological diagnosis, cases were classified into four major groups including, normal endometrium (prolifrative and secretory), endometrial hyperplasia, endometrial atrophy and endometrial carcinoma.

The number and the percentage of each group as diagnosed by TVS, SIS, DHS and D&C biopsy is shown in table (14).

Table (14): The number and the percentage of four major groups including, normal endometrium, endometrial hyperplasia, endometrial atrophy and endometrial carcinoma as diagnosed by TVS, SIS, DHS and D&C biopsy.

GROUP	TVS		SIS		DHS		D&C	
	NO.	%	NO.	%	NO.	%	NO.	%
NORMAL	28	56%	25	50%	23	46%	25	50%
HYPERPLASIA	5	10%	5	10%	19	38%	17	34%
ATROPHY	17	34%	20	40%	7	14%	4	8%
CARCINOMA	0	0%	0	0%	1	2%	3	6%
TOTAL	50	100%	50	100%	50	100%	49	98%

Taking D&C biopsy as a gold standard for diagnosis, sensitivity, specificity, +ve predictive value and –ve predictive value of TVS, SIS and DHS were calculated in different groups of endometrial histopathology .

Regarding cases of endometrial hyperplasia, sensitivity, specificity, +ve predictive value and –ve predictive value for TVS were 27%, 100%, 100% and 70% respectively, for SIS were 27.7%, 100%, 100% and 70% respectively and for DHS were 88.2%, 94%, 88.2% and 94% respectively as shown in table (15) .

Table (15): Sensitivity, specificity, +ve predictive value and – ve predictive value of TVS, SIS and DHS in detection of cases with endometrial hyperplasia taking histopathological examination of the endometrium as a gold standard:

	TVS	SIS	DHS
No. of cases	49	49	49
True +ve	5	5	15
False +ve	0	0	2
True –ve	31	31	30
False –ve	13	13	2
Sensitivity	27%	27.7%	88.2%
Specificity	100%	100%	94%
+ve predictive value	100%	100%	88.2%
-ve predictive value	70%	70%	94%

Regarding cases of endometrial atrophy, sensitivity, specificity, +ve predictive value and –ve predictive value for TVS were 100%, 60%, 14% and 100% respectively , for SIS were 100%, 54%, 12.5% and 100% respectively and for DHS were 100%, 67%, 16% and 100% respectively as shown in table (16) .

Table (16): Sensitivity, specificity, +ve predictive value and -ve predictive value of TVS, SIS and DHS in detection of cases with endometrial atrophy taking histopathological examination of the endometrium as a gold standard:

	TVS	SIS	DHS
No. of cases	49	49	49
True +ve	3	3	3
False +ve	18	21	15
True –ve	28	25	31
False –ve	0	0	0
Sensitivity	100%	100%	100%
Specificity	60%	54%	67%
+ve predictive value	12.5%	14%	16%
-ve predictive value	100%	100%	100%

Regarding cases of endometrial carcinoma , sensitivity, specificity, +ve predictive value and –ve predictive value for TVS were 0%, 100%, 0% and 94% respectively, for SIS were 0%, 100%, 0% and 94% respectively and for DHS were 33%, 100%, 100% and 94% respectively as shown in table (17) .

Table (17): Sensitivity, specificity, +ve predictive value and -ve predictive value of TVS, SIS and DHS in detection of cases with endometrial carcinoma taking histopathological examination of the endometrium as a gold standard:

	TVS	SIS	DHS
No. of cases	49	49	49
True +ve	0	0	1
False +ve	0	0	0
True –ve	46	46	46
False –ve	3	3	2
Sensitivity	0%	0%	33%
Specificity	100%	100%	100%
+ve predictive value	0%	0%	100%
-ve predictive value	94%	94%	94%