



OPEN ACCESS

Key Words

Fibroid uterus, abnormal uterine bleeding, hysterectomy, menorrhagia, ultrasonography, histopathology

Corresponding Author

Ashvini Deshmukh,
Department of Obstetrics and
Gynaecology, DY Patil School of
Medicine and DY Patil Hospital India

Author Designation

¹Resident

²Head of Unit

³Assistant Professor

Received: 29 January 2024

Accepted: 17 February 2024

Published: 10 March 2024

Citation: Kinjal Parikh, Richa Singh and Ashvini Deshmukh, 2024. Prospective and Analytical Study to Correlate Two Dimensional Ultrasonography and Histopathology in Patients with Abnormal Uterine Bleeding. Res. J. Med. Sci., 18: 516-521, doi: 10.59218/makrjms.2024.5.516.521

Copy Right: MAK HILL Publications

Prospective and Analytical Study to Correlate Two Dimensional Ultrasonography and Histopathology in Patients with Abnormal Uterine Bleeding

¹Kinjal Parikh, ²Richa Singh and ³Ashvini Deshmukh

¹⁻³Department of Obstetrics and Gynaecology, DY Patil School of Medicine and DY Patil Hospital, India

ABSTRACT

Abnormal uterine bleeding (AUB) is a broad term that describes irregularities in the menstrual cycle involving frequency, regularity, duration and volume of flow outside of pregnancy. Present study was aimed to correlate two dimensional ultrasonography and histopathology in patients with abnormal uterine bleeding at a tertiary hospital. Present study was hospital based prospective, analytical study, conducted in perimenopausal and postmenopausal women with abnormal uterine bleeding, underwent operative management. All patients underwent clinical examination, transvaginal sonography and detailed histological study. Among 50 patients, majority of the patients (68%) were in the age group of 40-45 years and most common presentation was Menorrhagia (44%) followed by Metrorrhagia (18%), Menometrorrhagia (14%), Polymenorrhagia (14%) and Post-menopausal bleeding (10%). The most common ultrasonography finding was Fibroid uterus (46%) followed by Bulky uterus (28%), Thickened endometrium (12%), Adenomyosis (10%), Endometrial polyp (2%). The histopathology finding of myometrium was fibroid in 23 (46%) patients, adenomyosis in 9 (18%) patients and normal myometrium in 18 (36%) patients. Histopathology of endometrium showed hyperplastic endometrium in 28 (56%) cases, secretory in 9 (18%) cases, proliferative in 7 (14%) cases, atrophic and carcinoma endometrium in 2 (4%) cases. There was 1 (2%) case each of endometrial polyp and inflammatory endometrium. The Sensitivity, Specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) in the detection of fibroid were 88.94%, 88.71, 89.64% and 91.14% respectively. The Sensitivity, Specificity, PPV and NPV in the detection of adenomyosis were 49.47%, 96.88%, 97.14% and 88.57% respectively. The study provides a concrete evidence that ultrasonography has good diagnosis of fibroid in patients with abnormal uterine bleeding. The combination of procedure viz: ultrasonography and histopathology can aid in a better diagnosis rather than a single procedure.

INTRODUCTION

Abnormal uterine bleeding (AUB) is a broad term that describes irregularities in the menstrual cycle involving frequency, regularity, duration and volume of flow outside of pregnancy. Up to one-third of women will experience abnormal uterine bleeding in their life, with irregularities most commonly occurring at menarche and perimenopause. Menstrual flow outside of normal volume, duration, regularity or frequency is categorized as Abnormal uterine bleeding (AUB). About one third of outpatient visits to gynaecologists are for AUB and it accounts for more than 70% of all gynaecologic consults in the reproductive, perimenopausal and postmenopausal age group^[1,2].

Ultrasound use has decreased the need for invasive procedures in the diagnosis of abnormal uterine bleeding^[3]. Transvaginal ultrasonography is the accepted primary modality for the evaluation of abnormal uterine bleeding. It is non-invasive, low cost procedure that does not cause patient discomfort and hence can be used as the first diagnostic step in the evaluation of a woman who presents with abnormal uterine bleeding^[4,5]. Endometrial biopsy by Dilatation and Curettage or office endometrial biopsy is considered the gold standard in AUB^[6,7]. Present study was aimed to correlate two dimensional ultrasonography and histopathology in patients with abnormal uterine bleeding at a tertiary hospital.

MATERIAL AND METHODS

Present study was hospital based prospective, analytical study, conducted in department of Obstetrics and Gynecology, D Y Patil University School of Medicine and Hospital, Nerul, Navi Mumbai, India. Study duration was of 18 months (September 2020 to March 2022). Study approval was obtained from institutional ethical committee.

Inclusion Criteria:

- All Perimenopausal and Postmenopausal women with abnormal uterine bleeding, underwent operative management, willing to participate in present study

Exclusion Criteria:

- Known Cases of Carcinoma Cervix
- Patients with Bleeding Disorders
- Women with Adnexal Pathology
- Patients with Acute Inflammatory Pathology

Study was explained to patients in local language and written consent was taken for participation and study. Once the patients were enrolled for the study, a thorough history and physical examination was done as per proforma. The detailed clinical history including

age, parity, the chief presenting complaints, menstrual, contraceptive, medical history (age of patient, patterns of abnormal uterine bleeding, severity, associated pain, family history, and use of medication) and sociodemographic profile were then recorded. Following the socio demographic and clinical characteristics, general physical examination (pallor, oedema, neck glands, thyroid and systemic examination and pelvic examination (per speculum, pap-smear, bimanual examination) was carried out for the participants. Complete haemogram, Blood group, Random blood sugar, Thyroid profile, Urine routine, Renal function test, Liver function test, Transvaginal sonography or Transabdominal sonography and endometrial biopsy were done in all patients, irrespective of the endometrial thickness.

The endometrium was imaged in the longitudinal and cross-sectional plane through the body and the fundus of the uterus. The thickest point of the endometrium was measured from the anterior to posterior myometrium-endometrial junction. Both layers of the endometrium were measured, that is the anterior and posterior layers. Morphological changes like appearance of endometrial strip (homogenous/heterogenous), endometrial thickness (diffuse/focal), margins (regular/irregular) were noted. Endometrial biopsies were done and the endometrial samples (endometrial curettage / hysterectomy specimens) were sent to pathology laboratory, and analyzed. These specimens are fixed in 10% formalin and gross morphology was recorded. Histopathological examination of the endometrial pattern as well as that of hysterectomy specimens was done. These bits were placed in cassettes and kept in fixative processed in the automatic tissue processor. Paraffin tissue blocks were prepared and 3-4 micrometer thick sections were cut and stained with routine Haematoxylin and Eosin. A detailed histological study was carried out and the findings were noted. Hysterectomy specimens were subjected to histopathological examination.

Data was collected and compiled using Microsoft Excel, analyzed using SPSS 23.0 version. Quantitative data was presented with the help of Mean and Standard deviation. Comparison among the study group was done with the help of unpaired 't' test as per results of normalcy test. Qualitative data was presented with the help of frequency and percentage table. Association among the study groups is assessed with the help of Fisher's test, Student 't' test and Chi square test. 'p' value less than 0.05 is taken significant.

RESULTS AND DISCUSSIONS

Among 50 patients, majority of the patients (68%) were in the age group of 40-45 years followed by 22% in the age group of 45-50 years and 10% in the age group of >50 years. The mean age of the patients was 44.54±3.66 years. 2 (4%) patients were nulliparous

Table 1: General characteristics

	No. of patients	Percentage
Age groups (in years)		
40-45 years	34	68
45-50 years	11	22
>50 years	5	10
Mean age (mean±SD)	44.54±3.66	
Parity		
0	2	4
1	5	10
2	9	18
3	14	28
=4	20	40
Duration of Symptoms		
1-3 months	11	22
3-6 months	27	54
6-12 months	7	14
>12 months	5	10
AUB Pattern		
Menorrhagia	22	44
Metrorrhagia	9	18
Menometrorrhagia	7	14
Polymenorrhagia	7	14
Post-menopausal bleeding	5	10

Table 2: Distribution of patients according to Ultrasonography Findings

Ultrasonography Findings	No. of patients	Percentage
Fibroid uterus	23	46
Bulky uterus	14	28
Thickened endometrium	6	12
Adenomyosis	5	10
Endometrial polyp	1	2
Total	50	100

Table 3: Distribution of patients according to Histopathology Findings

Histopathology Findings	No. of patients	Percentage
Histopathology Findings of Myometrium	N	%
Leomyomatous changes	23	46
Adenomyomatous changes	9	18
Normal	18	36
Histopathology Findings of Endometrium		
Hyperplastic	28	56
Secretory	9	18
Proliferative	7	14
Atrophic endometrium	2	4
Carcinoma endometrium	2	4
Endometrial Polyp	1	2
Inflammatory endometrium	1	2
Histopathology Findings of Cervix		
Inflammatory	30	60
Cervical intraepithelial neoplasia (CIN) I	1	2
Carcinoma cervix	1	2
Normal	18	36
Types of Hyperplasia (n = 28)		
Simple typical	22	78.4
Complex typical	3	10.8
Simple atypical	1	3.6
Complex atypical	2	7.2

Table 4: Sensitivity and Specificity of ultrasonography diagnosis with histopathological diagnosis

USG Findings of Fibroid	Histopathological Findings		Total
	Present	Absent	
Present	20	3	23
Absent	2	25	27
Parameter	Value	95% CI	
Sensitivity	88.94%	78.73% to 94.57%	
Specificity	88.71%	80.33% to 95.97%	
Positive Predictive Value	89.64%	81.32% to 93.24%	
Negative Predictive Value	91.14%	80.19% to 96.29%	

while 5 (10%) and 9 (18%) patients were para1 and para 2 respectively. 14 (28%) and 20 (40%) patients were para 3 and para = 4 respectively. The duration of symptoms for majority of the patients (54%) was 3-6 months followed by 1-3 months (22%), 6-12 months (14%) and >12 months (10%). The most common

presentation was Menorrhagia (44%) followed by Metrorrhagia (18%), Menometrorrhagia (14%), Polymenorrhagia (14%) and Post-menopausal bleeding (10%). The most common ultrasonography finding was Fibroid uterus (46%) followed by Bulky uterus (28%), Thickened endometrium (12%), Adenomyosis (10%),

Table 5: Sensitivity and Specificity of ultrasonography diagnosis with histopathological diagnosis

USG Findings of Adenomyosis	Histopathological Findings		
	Present	Absent	Total
Present	4	1	5
Absent	5	40	45
Total	9	41	50

Parameter	Value	95% CI
Sensitivity	49.47%	35.20% to 57.06%
Specificity	96.88%	83.78% to 99.92%
Positive Predictive Value	97.14%	83.12% to 99.58%
Negative Predictive Value	88.57%	75.37% to 95.15%

Table 6: Association of AUB Pattern and Ultrasonography findings in patients

USG findings	Menorrhagia		Metrorrhagia		Menometrorrhagia		Polymenorrhagia		Post-menopausal bleeding		Total
	N	%	N	%	N	%	N	%	N	%	
Fibroid uterus	12	24	3	6	3	6	4	8	1	2	23
Bulky uterus	7	14	3	6	2	4	1	2	1	2	14
Thickened endometrium	1	2	1	2	1	2	1	2	2	4	6
Adenomyosis	2	4	1	2	1	2	1	2	0	-	5
Endometrial polyp	0	-	1	2	0	-	0	-	0	-	1
Malignancy	0	-	0	-	0	-	0	-	1	2	1
Total	22	44	9	18	7	14	7	14	5	10	50

Table 7: Association of Ultrasonography findings and Histopathology findings of Myometrium

USG findings	Leiomyomatous changes		Adenomyomatous changes		Normal		Total
	N	percentage	N	percentage	N	percentage	
Fibroid uterus	20	40	3	6	0	-	23
Bulky uterus	1	2	2	4	11	22	14
Thickened endometrium	1	2	0	-	5	10	6
Adenomyosis	1	2	4	8	0	-	5
Endometrial polyp	0	-	0	-	1	2	1
Malignancy	0	-	0	-	1	2	1
Total	23	46	9	18	18	36	50

Table 8: Association of Ultrasonography findings and Histopathology findings of Endometrium

USG findings	Hyperplastic		Secretory		Proliferative		Atrophic endometrium		Carcinoma Endometrial Polyp endometrium		Inflammatory endometrium		Total
	N	%	N	%	N	%	N	%	N	%	N	%	
Fibroid uterus	10	20	6	12	5	10	2	4	0	0	0	0	23
Bulky uterus	9	18	2	4	1	2	0	-	1	2	0	1	14
Thickened endometrium	5	10	0	-	0	-	0	-	1	2	0	0	6
Adenomyosis	3	6	1	2	1	2	0	-	0	0	0	0	5
Endometrial polyp	0	-	0	-	0	-	0	-	0	1	2	0	1
Malignancy	1	2	0	-	0	-	0	-	0	0	0	0	1
Total	28	56	9	18	7	14	2	4	2	4	1	2	50

Table 9: Association of Ultrasonography findings and Histopathology findings of Cervix

USG findings	Inflammatory		CIN I		Carcinoma cervix		Normal		Total
	N	percentage	N	percentage	N	percentage	N	percentage	
Fibroid uterus	13	26	0	-	0	-	10	20	23
Bulky uterus	8	16	1	2	0	-	5	10	14
Thickened endometrium	5	10	0	-	0	-	1	2	6
Adenomyosis	4	8	0	-	0	-	1	2	5
Endometrial polyp	0	-	0	-	0	-	1	2	1
Malignancy	0	-	0	-	1	2	0	-	1
Total	30	60	1	2	1	2	18	36	50

Endometrial polyp (2%). The histopathology finding of myometrium was fibroid in 23 (46%) patients, adenomyosis in 9 (18%) patients and normal myometrium in 18 (36%) patients. Histopathology of endometrium showed hyperplastic endometrium in 28 (56%) cases, secretory in 9 (18%) cases, proliferative in 7 (14%) cases, atrophic and carcinoma endometrium in 2 (4%) cases. There was 1 (2%) case each of endometrial polyp and inflammatory endometrium. There were 30 (60%) cases of inflammatory cervix and 1 (2%) case each of cervical intra epithelial neoplasia (CIN) I and carcinoma cervix. The most common type of hyperplasia in histopathology finding was simple

typical hyperplasia (78.4%) followed by complex typical (10.8%), complex atypical (7.2%) and simple atypical (3.6%). The Sensitivity, Specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) in the detection of fibroid were 88.94%, 88.71, 89.64% and 91.14% respectively. The Sensitivity, Specificity, PPV and NPV in the detection of adenomyosis were 49.47%, 96.88%, 97.14% and 88.57% respectively. The results reveal that the sensitivity is lower in diagnosis of adenomyosis.

Majority of patients diagnosed as fibroid uterus, bulky uterus and adenomyosis by USG had presented with menorrhagia. Out of the 5 patients with

postmenopausal bleeding, 2 (4%) patients had endometrial thickening in USG. There was no significant association of AUB Pattern and ultrasonography findings as per Chi-Square test ($p>0.05$). Out of 23 (46%) cases of fibroid uterus diagnosed ultrasonographically, 20 (40%) cases were confirmed histopathologically and 3 (6%) cases were diagnosed as adenomyosis. Out of 14 (28%) cases of bulky uterus in USG, histopathological findings revealed fibromyoma in 1 (2%) case, adenomyosis in 2 (4%) cases and normal myometrium in 11 (22%) cases. Out of 6 (12%) cases of thickened endometrium in USG, histopathological findings revealed fibromyoma in 1 (2%) case and normal myometrium in 5 (10%) cases. Out of 5 (10%) cases of adenomyosis in USG, histopathological findings revealed fibromyoma in 1 (2%) case and adenomyosis in 4 (8%) cases. Out of 28 (56%) cases of endometrial hyperplasia diagnosed by histopathology findings, USG detected thick endometrium in 5 (10%) cases. Out of the 2 (4%) HPE confirmed carcinoma endometrium cases, USG detected thick endometrium and bulky uterus in 1 (2%) case each. Out of 23 (46%) cases of fibroid uterus diagnosed ultrasonographically, 13 (26%) cases were inflammatory, and 10 (20%) cases were normal in HPE findings. Out of 14 (28%) cases of bulky uterus in USG, were inflammatory, 1 (2%) case was CIN I and 5 (10%) cases were normal in HPE findings.

Abnormal uterine bleeding affects the quality of life such as day to day living along with serious adverse consequences such as anaemia or malignancy. 2-3A normal menstrual cycle has a frequency of 24 to 38 days, lasts 7 to 9 days, with 5 to 80 milliliters of blood loss. 4 Variations in any of these 4 parameters constitute abnormal uterine bleeding. In the present study, majority of the patients (68%) were in the age group of 40-45 years followed by 22% in the age group of 45-50 years and 10% in the age group of >50 years. The mean age of the patients was 44.54 ± 3.66 years. This is similar to the studies of Talukdar *et al.*^[8] Mahajan *et al.*^[9] and Kumari *et al.*^[10] Talukdar *et al.*^[8] found highest number of AUB was para 4 or more (42.71%) followed by para 3 (26.21%). Mahajan *et al.*^[9] hospital based cross-sectional analytical study showed 22.1% and 3.5% were nulliparous, 5.8% were primipara and the remaining participants were multiparous women. Similar findings were noted in present study. It was observed in the present study that the duration of symptoms for majority of the patients (54%) was 3-6 months followed by 1-3 months (22%), 6-12 months (14%) and >12 months (10%). Talukdar *et al.*^[8] and Mahajan *et al.*^[9] noted similar observations in their studies. The most common presentation in our study was Menorrhagia (44%) followed by Metrorrhagia (18%), Menometrorrhagia (14%), Polymenorrhagia (14%) and Post-menopausal bleeding (10%). This finding is similar to the study done by Talukdar *et al.*^[8]

in which menorrhagia was the most common presentation in AUB evaluation. This is also concordant to the studies of Kumari *et al.*^[9] Mahajan *et al.*^[10] and Sharma *et al.*^[11]

The most common ultrasonography finding in the present study was Fibroid uterus (46%) followed by Bulky uterus (28%), Thickened endometrium (12%), Adenomyosis (10%), Endometrial polyp (2%) and Malignancy (2%). Similar observations were noted in the studies of Talukdar *et al.*^[8] Mahajan *et al.*^[9] and Kumari *et al.*^[10] Talukdar *et al.*^[8] study showed on Ultrasonographically findings 47 (45.63%) cases were fibroid uterus, 30 cases (29.12%) were bulky uterus, 11 cases (10.69%) were adenomyosis, and 12 (11.65%) cases were diagnosed as thickened endometrium. Mahajan *et al.*^[9] study found ultrasonographically 54 (62.8%) cases were fibroid uterus, 8 (9.3%) cases were adenomyosis, 6 (7.0%) cases were thickened endometrium and one case was endometrial polyp. Seventeen (19.7%) cases were bulky uterus. Kumari *et al.*^[10] prospective study showed Ultrasonographically 28% cases had cervical mass which were of cervical malignancy, 18 cases were fibroid uterus, 8 cases were adenomyosis, and 24 cases were diagnosed as thickened endometrium. Endometrial polyp was present in 3 cases. Majority of patients diagnosed as cervical mass, thickened endometrium and normal USG had presented with postmenopausal bleeding.

In the present study, the most common type of hyperplasia in histopathology finding was simple typical hyperplasia (78.4%) followed by complex typical (10.8%), complex atypical (7.2%) and simple atypical (3.6%). The Sensitivity, Specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) in the detection of fibroid were 88.94%, 88.71, 89.64% and 91.14% respectively. The Sensitivity, Specificity, PPV and NPV in the detection of adenomyosis were 49.47%, 96.88%, 97.14% and 88.57% respectively. The results reveal that the sensitivity is lower in diagnosis of adenomyosis. This is concordant to the studies of Talukdar *et al.*^[8] Mahajan *et al.*^[9] and Kumari *et al.*^[10] Talukdar *et al.*^[8] study revealed sensitivity of USG for the diagnosis of leiomyoma was 89.13% and the specificity was 89.47% and that the sensitivity was lower in diagnosis of adenomyosis (47.62%). Ultrasound was able to confirm adenomyosis with sensitivity of 47.62%, specificity of 98.78%, positive predictive value of 90.91%, and negative predictive value 80.04% which shows USG has a limitation in tissue characterization in diagnosis adenomyosis. Mahajan *et al.*^[9] study assessing ultrasonographic findings with HPE findings in AUB revealed sensitivity, specificity, positive predictive value, negative predictive value and kappa statistics of USG for diagnosing adenomyosis was 53.8%, 98.6%, 87.5%, 92.3% and 62.3% and USG for diagnosing leiomyoma was 92.9%, 93.3%, 96.3%, 87.5% and 84.9%

respectively. Kumari *et al.*^[10] prospective study observed the validity of USG in the detection of fibromyoma and adenomyosis revealed that the sensitivity, Specificity, PPV, NPV for fibroid was 94.44%, 98.7%, 94.44, 98.7 and for the diagnosis of adenomyosis 43.75%, 90.21%, 87.5%, 90.21 respectively. Shrestha *et al.*^[12] observed malignancy was higher in a postmenopausal group as compared to the premenopausal group and measurement of endometrial thickness on Ultrasonography and histopathological assessment in patients above 45 years presenting with abnormal uterine bleeding will be helpful in detecting endometrial hyperplasia and carcinoma.

CONCLUSION

Fibroid uterus was the leading cause of abnormal uterine bleeding for which hysterectomy is done. Incidence of AUB is more common 5th decade of life in multiparous (para 3 and para > 4) women and witness menorrhagia as the most common bleeding pattern. The study provides a concrete evidence that ultrasonography has good diagnosis of fibroid in patients with abnormal uterine bleeding. The combination of procedure viz: ultrasonography and histopathology can aid in a better diagnosis rather than a single procedure.

REFERENCES

1. McCluggage, W.G., 2006. My approach to the interpretation of endometrial biopsies and curettings. *J. Clin. Pathol.*, 59: 801-812.
2. Fraser, I.S., H.O.D. Critchley, M.G. Munro and M. Broder, 2007. Can we achieve international agreement on terminologies and definitions used to describe abnormalities of menstrual bleeding. *Hum. Reprod.*, 22: 635-643.
3. Munro, M.,G.H.O.D. Critchley. and I.S. Fraser, 2018. FIGO Menstrual Disorders Committee. The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years: 2018 revisions. *Int. J. Gynaecol. Obstet.*, 143: 393-408.
4. Whitaker, L. and H.O.D. Critchley, 2016. Abnormal uterine bleeding. *Best Pract. Res. Clin. Obstet. Gynaecol.*, 34: 54-65.
5. Wolfman, D.,J. and S.J. Allison, 2011. Imaging of benign uterine conditions. *Applied. adiol.*, 40: 8-15.
6. Vani, B.,S. Vani, R. Jijiya and P. Bai, 2019. Histopathological evaluation of endometrial biopsies and curetting's in abnormal uterine bleeding. *Trop. J. Pathol. Microbiol.*, 5: 190-197.
7. Supriya, S.,H.T and Jayaprakash, 2016. Abnormal uterine bleeding: Histopathological patterns of endometrium in elderly. *Indian. J. Pathol. Oncol.*, 3: 622-664.
8. Talukdar, B. and S. Mahela, 2016. Abnormal uterine bleeding in perimenopausal women: Correlation with sonographic findings and histopathological examination of hysterectomy specimens. *J. Mid-life Health*, 7: 73-77.
9. Mahajan, K., R.K.P. Devi, A. Singh, D. Lairenjam and L.R. Singh et al., 2020. Correlation between ultrasonographic and histopathological findings of hysterectomy specimen in patients with abnormal uterine bleeding. *Int. J. Rep. Contr. Obstet. Gynecol.*, 9: 4123-4129.
10. Kumari, A., S. Pankaj, V. Choudhary, J. Kumari and S. Nazneen et al., 2018. Ultrasonic and histopathological evaluation to exclude premalignant and malignant lesions in perimenopausal and postmenopausal women presenting as abnormal uterine bleeding. *J. Obstet. Gynecol. India.*, 69: 171-176.
11. Sharma, J. and S. Tiwari, 2016. Hysteroscopy in abnormal uterine bleeding vs ultrasonography and histopathology report in perimenopausal and postmenopausal women. *JNMA. J. Nepal. Med. Assoc.*, 55: 26-28.
12. Shrestha, P., S. Shrestha and V. Mahato, 2018. Endometrial study by ultrasonography and its correlation with histopathology in abnormal uterine bleeding. *Asian. J. Med. Sci.*, 9: 31-35.