



B-SCAN: A SIGNIFICANT TOOL IN EVALUATION OF VARIOUS OCULAR LESIONS AND ITS MERITS OVER CONVENTIONAL OPHTHALMOSCOPIC EXAMINATION

Radiodiagnosis

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ABSTRACT

INTRODUCTION: USG study of 118 patients in the present study highlights the advantages of ocular ultra sonography (B-mode) in the evaluation of retinal disorders.

AIMS & OBJECTIVES: To evaluate the role of USG in cases with opaque light conducting media where direct vision by ophthalmoscopy is impossible, trauma where direct ophthalmoscopy is challenging even for experienced clinicians and in orbital diseases and in localization of intraocular foreign body.

CONCLUSION: Ultrasonographic findings were well correlated with clinical and operative observations. Sonographic examination unambiguously deserves foremost position in the algorithm for imaging pathological states of the eyeball.

KEYWORDS

INTRODUCTION:

Sonographic study of 118 patients in the present series highlights the advantages of ocular ultra sonography (B-mode) in the evaluation of retinal disorders; especially in patients with opaque ocular media and trauma.

Aims & Objectives:

To evaluate the role of USG in cases with opaque light conducting media where direct vision by ophthalmoscopy is impossible.

To evaluate the role of USG in cases with trauma where direct ophthalmoscopy is challenging even for experienced clinicians. The combination of a bright room, an uncooperative or photophobic patient and contraindications to pupillary dilatation can render the direct ophthalmoscope ineffective.

To evaluate the role of USG in orbital diseases and in localization of intraocular foreign body.

Material And Methods:

118 patients of different age groups in both sexes with a clinical suspicion of intraocular and orbital pathology were included in the study.

Sonographic study was done using GE LOGIQ P9 machine with a linear probe of frequency 3-12 mhz.

Selection group consisted mainly of:

- Patients in whom fundoscopy could not be carried out due to opaque ocular media,
- Patients with blunt trauma to eye,
- Patients presenting with proptosis.

A detailed clinical history with clinical examination and follow up of the suspected/ proven cases was done.

Observation And Analysis:

• Age Distribution:

AGE (yrs)	Total pt (118)	%
0-10	11	10
11-20	17	15
21-30	11	10
31-40	28	24
41-50	17	15
51-60	15	12
>60	19	14

• Presenting Complaint:

Presenting complaint	Total pt	%
Diminution of vision	57	48
Pain	14	12
Proptosis	11	10
Trauma	24	20
Discharge from eye	6	5
Swelling of eyelid	4	3
Squint	2	2

• Incidence Of Pathologies:

Pathologies	Total pt	%
Vitreous haemorrhage	36	30
Retinal detachment	30	25
Endophthalmitis	18	15
Dislocated lens	10	9
Phthisis bulbi	8	7
Vitreous detachment	6	5
Foreign body	6	5
Coloboma	1	1
Choroidal detachment	1	1
Retinoblastoma	1	1
Choroidal melanoma	1	1

• Statistical Analysis Of Ocular Lesions:

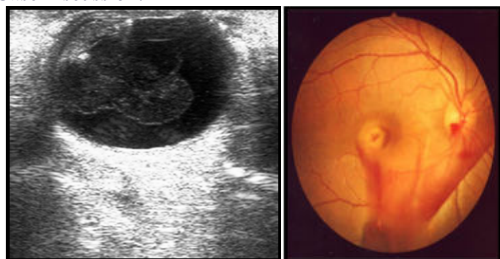
PATHOLOGIES	SPECIFICITY	SENSITIVITY	POSITIVE PREDICTIVE VALUE	NEGATIVE PREDICTIVE VALUE
Vitreous haemorrhage	95.12	100.00	90.00	100.00
Retinal detachment	100.00	96.67	100.00	98.88
Endophthalmitis	100.00	77.78	100.00	96.15
Vitreous detachment	100.00	83.33	100.00	99.12
Coloboma /Dislocated lens /Phthisis bulbi /Foreign body /Choroidal detachment /Retinoblastoma /Choroidal melanoma	100.00	100.00	100.00	100.00

RESULTS:

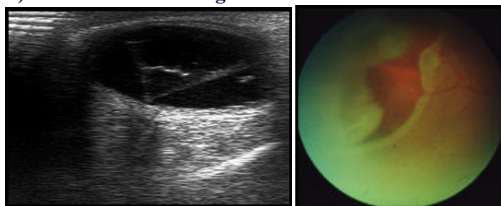
Orbital pathologies were observed in this study were predominantly in 3rd-4th (24%) decade of life. Sex ratio of male:female was 2:1. The chief clinical features were diminution of vision (48%) followed by

trauma(20%). The most common cause for opaque media was lens opacity(58%) followed by vitreous opacity(36%).Commonest pathologies were vitreous hemorrhage (30%) followed by retinal detachment (25%)and endophthalmitis.(15%).In cases of trauma the most common pathology was vitreous haemorrhage(42%) followed by retinal detachment(28%).Retinal detachment showed sensitivity of 97% and the specificity was 100%.Vitreous haemorrhage had a sensitivity of 100% but specificity was less around 96%.62% of referrals for usg were with opaque media while 38% had clear media in which usg was used as a complimentary diagnostic modality.Presence of abnormal echoes in vitreous cavity was seen in vitreous degeneration, haemorrhage or endophthalmitis.Present study had 8 cases of pthisis bulbi 5 due to old trauma and 3 due to inflammation.Out of 18 cases of endophthalmitis usg detected 14 cases while 4 cases were daignosed as vitreous haemorrhage.Out of 6 cases of vitreous detachment usg detected 5 cases and 1 was diagnosed as retinal detachment.Ultrasonography permits accurate localization of foreign body. In case of dislocated lens, B-scan USG could demonstrate the posterior of lens & associated abnormalities.

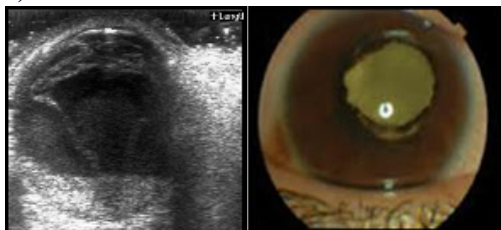
• Case Discussion:



Case 1) Vitreous Haemorrhage



Case 2) Retinal Detachment:



Case 3) Pthisis Bulbi:

CONCLUSION:

Ultrasonographic findings were well correlated with clinical, operative & histological observation.Sonographic examination unambiguously deserves foremost position in the algorithm for imaging pathological states of the eyeball.It is non-ionizing, cost-effective, non-radiation and non-invasive technique which can be performed in outdoor patient. Provides excellent quality real time imaging of various ocular pathologies. It can be extensively used in evaluation of retinal disorders, in patients with opaque ocular media and trauma where a preoperative fundoscopic evaluation is virtually impossible, for assessment of the posterior segment. .Can be performed in outdoor patient without any use of anesthetics or sedative therapy .Feasible option in rural centers.

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