New Ultrasonic Signs: Separated-eye-wall For Follow-up Posterior Scleritis

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Abstract:
Objective*: Describe B mode ultra sonographic image for follow-up posterior scleritis associated with vision and periocular pain during steroids treatment.*
Design: *Observational case report.*
Method*: (Ultrascan Imaging System /Version 3.00 ALCON)*
** B- mode ultrasound examination with choroid setup were recorded by signs:*
- Eye wall thickness >2mm.We propose an additional ultrasonic signs: signs of separated eye wall to follow up the patient with posterior scleritis response to steroid therapy. If separated eye wall signs >2mm is (+) or ≤2mm is (-).
** Periocular pain included 3 grades:*

- *mild+, tenderness in the eyeball;*
- *moderate++, pain during eye movement;*
- *severe+++, spontaneous global pain.*

Table I: Separated eye wall signs and Periocular pain

Separated eye wall signs		Periocular pain	
≤2	negatve	mild	+
>2	positive	moderate	++
		severe	+++

** Visual acuity: Snellen.*
** Intraocular pressure: Schiotz.*
Main outcome measures : *An additional symptom: periocular pain, Visual acuity, Intraocular pressure, B mode ultrasonography.*
Results: *Normal fellow eye is control eye*
** Visual acuity decreased under 5/10 of vision had B mode ultrasound images: eye wall thickness >2mm and separated eye wall (+), severe periocular pain.*
** Visual acuity 7/10 had B mode ultrasound images: eye wall thickness >2mm and separated eye wall (+), moderate periocular pain.*
** Restored vision had B mode ultrasound images: eye wall thickness ≤2mm and separated eye wall (-), mild periocular pain.*
Conclusion:
The B mode ultrasound images: eye wall thickness and separated eye wall associated with periocular pain may be useful for follow-up the progression as well as vision in posterior scleritis.
Key words: *scleritis, posterior scleritis, ultrasound, steroid treatment*

Introduction:

Posterior Scleritis (PS) is rarely diagnosed because of poor clinical signs, is coordinated with systemic diseases so that PS is affected by these conditions. Through ultrasound at Scleritis Department, Moorfields Eye Hospital, London was diagnosed increased more PS than before ultrasound. Patients are mostly young people, middle-aged. Severe symptoms are loss of vision, without systemic diseases [1]. We use the Classification of the Scleritis Department, Moorfields Eye Hospital: The eyeball wall > 2mm is thick. Some other ultrasonic Clinical diagnosis should distinguish intraocular inflammation, extraocular inflammation and tumor. PS can be idiopathic or associated with other systemic diseases such as arthritis.
signs: Exudate sub capsular Tenon, swollen optic nerve, retinal detachment, vitreous opacity were also diagnosed by ultrasonography as an evidence-based medicine [2] [3].
We propose an additional ultrasonic signs: separated eye wall and periocular pain to follow up the patient with PS response to steroid therapy [4] [5] [6]

Peri ocular pain was divided three levels: Level 1: + tenderness in the eyeball, level 2: ++ pain during eye movement, level 3: +++ spontaneous global pain. [7]

Case Report:

A male patient, 35 years old. LE= One month ago he saw blurry slowly without pain. He went to local health care with drug treatment is unknown type, but with no relief. Blurred vision and pain around the eye were up.

Eye Checkup: General Condition: consciousness, weight 68kg, height 1m66, HR 75 times/ minute, blood pressure of 120/70 mmHg. Temperature 37 degrees C.

RE = VA 10/10. IOP 17mmHg, other parts normal.

LE = VA 3/10. IOP 17mmHg. Conjunctiva: pink. Cornea: clear. Anterior chamber: clear and deep. Direct reflex light to pupil (+). Fundus: Papilla: clear tour round, cup/disque=0,2. Central macula: clear, no oedema, no discharge. Retina: Blood vessels of the retina in normal limits. Retinal angiography was not been done.

Ultrasound B: eyeball wall 2,6mm thickness. Separated eye wall compare with eye diseases. Optic nerve: normal. Ultrasound A anterior chamber depth 2.5mm

XQ: Blondeau, Hirtz: normal. Heart and lung: normal.

Tests: RBC = 4 million / mm3 WBC = 7,600 / mm3.

Erythrocyte sedimentation rate is 15 mm /1st hour and 2nd hour is 20mm. HbsAg (-)

Differential diagnosis: Posterior scleritis, central retinitis with normal retinography and no scotoma.

Positive diagnosis: Unknown posterior scleritis.

Treatment: Systemic corticosteroids: dexamethasone 4 mg intravenously x 2 times / day, 3 days after dose reduction 1 time / day to maintain a week later replaced with oral prednisolone 15mg / day x 1 week. Hydrocortisone acetate (Acepolcort H) 0.5 ml periocular injection every 3-day-one time for the 1st week was added. Then this periocular injection was discontinued once a week for during 3 weeks. Monitoring intraocular pressure is normal limits during steroids treatment.

Discussion and Conclusions:

The symptoms of posterior scleritis as follows: Periocular pain, pain on global movement, spontaneous global pain. The symptoms depend on the location of this inflammation spreads to levels choroidal, retinal, muscle eyeball. Deep scleral inflammation can cause uveitis lead to secondary intraocular pressure. Localized inflammation of the sclera can accumulate exudate lower retina causing retinal detachment. Inflammation can reduced vision included papilledema; retinal folds; lesion exudates macular and retinal pigment epithelium. Mild uveitis is rarely associated with PS, this ratio is about 2%. Severe uveitis is not PS signs. Uveitis was diagnosed when the presence of cells or cloudiness in the anterior chamber are eliminated. [1] [7]

Age 40-50: PS related to systemic disease is 29%. Most idiopathic PS responses with nonsteroidal anti-inflammatory drugs.

Patients with decreased visual acuity, optic nerve damage, systemic diseases, need actively treatment with attack dose of anti-inflammatory drugs. Idiopathic PS with no accompanying systemic diseases usually has a variety of clinical manifestations. Some may develop serious infections, some other less pain, less inflammation but have diminished vision with thick into the eyeball. Must pay attention to the risk of loss of vision in order to minimize this risk factor [1].

Reviews immunosuppressive treatment at improving the vision reflect a bias in treatment; because immunosuppressive drugs typically used for severe uveitis, few forms of treatment response should not increase vision. The previous studies showed more use of corticosteroids did not show increased visual response, but also showed reduced relapse rate after stopping the retrobubar/periocular injection when switched to systemic treatment.

PS with ultrasound diagnostic images include the following: the eyewall thickness > 2mm, exudate under Tenon, expansion of sclera, swelling optic nerve, retinal detachment, scleral nodules.

Histologic necrosis PS is rare but if so, ultrasound cannot detect early this necrosis. Clinical response and ultrasound images are not always close relationship. Some patients improve faster by ultrasound image, however some ultrasound images persist long [1] [7] [8].

Our case, beside the sign of thickness of the eyewall > 2mm, we observed signs of separation of the

This paper a case of posterior sclerotic that was followed up by ultrasonography during steroids treatment in author's unit was reported.

eyewall in place cross-section, compared with the contralateral eye witnesses, (normal eye control) [5]. By observation we noticed signs of thickness of the outer eyeball added with separation of the outer eyeball be related to vision. The vision returned to normal after 3 to 4 weeks to respond with corticoid treatment so these signs also disappeared. However, prospective studies need to be confirmed with a large sample size.

With these ultrasound images associated with peri ocular pain: tenderness in the eyeball +, pain during eye movement ++, spontaneous global pain +++, can contribute in diagnostics as well as follow-up PS. It is especially provide a basis for initial follow up vision's patient.

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Author Profile

Duong Dieu received the MD (1978) and PhD (2003). He was chief of Ophthalmology Department for over 30 years with clinician/surgeon. From 2010 to now he is senior lecturer of Faculty of Medicine of Nguyen Tat Thanh University in HCM city- Vietnam

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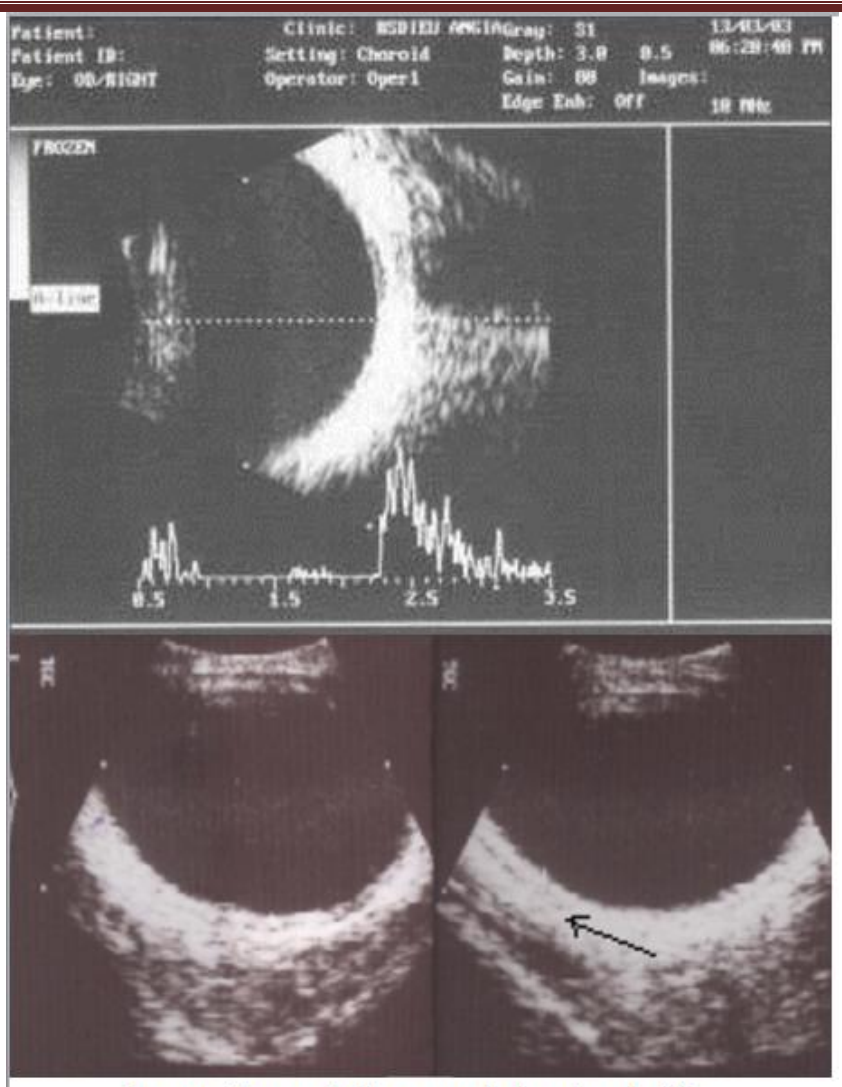
Table II:

VA, IOP, eye wall thickness, eye wall separation, and periocular pain with treatment:

Treatment	VA (Snellen)	IOP (Schiotz)	Eye wall thickness	Eye wall separation	Periocular pain
1 week	5/10	17mmHg	2,6mm	(+)	+++
2 weeks	7/10	17mmHg	2,4mm	(-)	++
3 weeks	8/10	20mmHg	2mm	(-)	+
4 weeks	8/10	20mmHg	2mm	(-)	+



Arrow= Separated-eye-wall sign in scleritis