

ORIGINAL ARTICLE

To study the prevalence of thyroid eye signs in patients of thyrotoxicosis in a tertiary hospital in Western India

Devdatta J Gohel¹, Atul M Kamath², Dhananjay Bhosale², Binita N Gadhavi², Samip A Mehta², Prashansa Thakur²

¹HOD & Professor, Department of Ophthalmology, Guru Gobind Singh Government Hospital, Jamnagar, Gujarat

² final year resident, Department of Ophthalmology, Guru Gobind Singh Government Hospital, Jamnagar, Gujarat

ABSTRACT

BACKGROUND AND OBJECTIVES: Graves' disease is the most common autoimmune disease, representing majority of cases of hyperthyroidism. It occurs more commonly amongst women, smokers and patients with other autoimmune diseases or a family history of thyroid autoimmunity. To study the prevalence of thyroid eye signs in patients of thyrotoxicosis, to look for the most common thyroid eye signs associated with the disease and to look for correlation of eye signs and the duration of the disease. **METHODS:** A randomized retrospective comparative study was collected from 50 patients who were diagnosed with hyperthyroidism in the Outpatient department of our hospital during two year period after approval by ethical committee. **RESULTS:** 66% patients had hyperthyroid symptoms in our present study, with occurrence in males and in females being 64% & 67% respectively. Among the symptoms occurring in hyperthyroidism, most common was palpitations with occurrence being 55%, followed by weight loss being 36%. Among the hyperthyroid signs, most common was warm skin having prevalence of 94%, followed by tremors having prevalence of 90% followed by lid lag having prevalence of 86%. the most common thyroid eye sign was Dalrymple sign comprising of 98%, followed by Enroth's sign comprising of 94%, followed by Stellwag's sign being 92%. **CONCLUSION:** Our study showed that not all patients suffering from hyperthyroidism necessarily have symptoms and signs of it suggesting that a regular annual check up of TFT along with noticing subtle changes in the body is essential to prevent one from hyperthyroidism.

Keywords: Graves' orbitopathy, Thyrotoxicosis, Hyperthyroidism, thyroid eye disease (TED), thyroid- associated ophthalmopathy (TAO)

INTRODUCTION

Graves' orbitopathy/ophthalmopathy (GO) also known as thyroid eye disease (TED), Dysthyroid/ thyroid- associated ophthalmopathy (TAO), is an autoimmune disorder representing the commonest and most important extrathyroidal manifestation of Graves' disease. The eye manifestations of Graves' ophthalmology typically are self-limited. An active phase of inflammation and progression tends to stabilize spontaneously within 3-5 years of onset.¹ Initial symptoms of Graves' ophthalmology may be complaints of foreign-body sensation, tearing, or photophobia.

Periorbital inflammation often predominates early in the disease course. The most characteristic signs (table 1) are eyelid erythema and swelling, caruncular and conjunctival injection, and edema.^{2,3} Fluctuating upper or lower eyelid swelling indicates active disease while chronic swelling in the absence of erythema suggests congestive ophthalmopathy. Proptosis and lid retraction with lateral eyelid flare can present during any phase of GO and yield the characteristic staring appearance. Lid retraction, also known as Dalrymple's sign occurs commonly in 37-92% of patients.⁴ It may present as an isolated finding or in association with exophthalmos. Upper eyelid retraction may result from increased sympathomimetic tone, but may also be the consequence of eyelid fibrosis.⁵⁻⁸ Retraction of the lower lid usually correlates with the severity of proptosis.⁹ Graves' ophthalmopathy¹⁰ is diagnosed

*Corresponding Author:

Dr Atul M Kamath
Kausthubha, Hillgrove
Chilimbi I Cross, Ladyhill, Mangalore-
575006
Contact No: 9741474919
Email: dratulkamath29@gmail.com

clinically by the presenting ocular signs and symptoms, but positive tests for antibodies (anti-thyroglobulin, anti-microsomal and anti-thyrotropin receptor) and abnormalities in thyroid hormones level (T3, T4 and TSH) help in supporting the diagnosis. Orbital ultrasound can confirm if the patient has thickened muscles or an enlarged superior ophthalmic vein. Neuroimaging usually reveals thick muscles with tendon sparing. Neuroimaging may show a dilated superior ophthalmic vein and apical crowding of the optic nerve. MRI is more sensitive for showing optic nerve. CT scan is performed prior to bony decompression because it shows better bony architecture. Occasionally the proptosis results in straightening of the optic nerve.

Histological findings

- Lymphocytic cell infiltration
- Enlargement of fibroblasts
- Accumulation of mucopolysaccharides
- Interstitial oedema
- Increased collagen production
- Fibrosis with degenerative changes in the eye muscles

As very few studies have been done to know the frequency and commonly occurring thyroid signs & symptoms we undertook this study. Even an analysis on the commonly occurring thyroid eye signs was undertaken and evaluated to know the commonly occurring thyroid eye signs.

MATERIALS AND METHODS

A randomized retrospective study was done where 50 patients who were diagnosed with hyperthyroidism in the Outpatient department of our hospital during two year period after approval by ethical committee were collected. General information like age, history of smoking, years since diagnosed with hyperthyroidism, whether on or off medication, other systemic diseases etc were collected. Commonly occurring symptoms & thyroid eye signs were assessed in such patients and analysed and compiled.

Inclusion Criteria

1. Patients with various presenting with ocular symptoms such as diminution of vision, blurring of vision, irritation, foreign body sensation, redness
2. Patients with thyroid associated ophthalmopathy who had not received Immunosuppressive or surgical treatment for their eye disease
3. Male and female patients both will be included without bias.
4. Patients with systemic diseases like diabetes, hypertension, and auto immune diseases will be included in the study.
5. Patients with history of anterior segment eye surgeries such as cataract glaucoma, LASIK, RK, PRK

Exclusion Criteria

1. Patients with active infections in the eye
2. Patients with ocular or systemic emergency
3. Patients with perforated, traumatised and congenital anomaly in the eye.
4. Anything not mentioned in the inclusion criteria

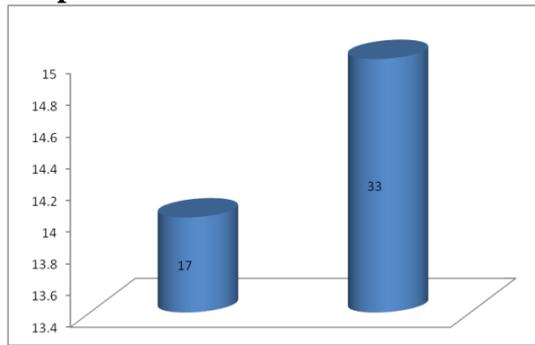
OBSERVATIONS

66% patients had hyperthyroid symptoms in our present study, with occurrence in males and in females being 64% & 67% respectively as depicted in table-1 and graph1 & graph-2 respectively.

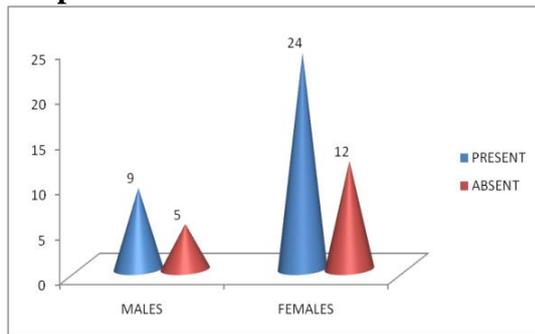
Table 1: Numerous eponymous signs with grave's orbitopathy

Von graefe's sign	Lid lag in down gaze
Joffroy sign	Absent creases in the forehead on superior gaze
Grove sign	Resistance to pulling down the retracted upper lid
Stellwag sign	Incomplete and infrequent blinking
Boston sign	Jerky irregular movement on downgaze
Vigouroux sign	Eyelid fullness
Dalrymple's sign	A widened palpebral fissure during fixatin
Kocher's sign	Eye globe lag in up gaze
Mobius sign	Poor convergence
Ballet sign	Restriction of one or more extraocular muscles
Gifford sign	Difficulty in everting upper lid
Griffith sign	Lower lid lag on downgaze
Jellink's sign	Increased pigmentation on the lids

Graph 1



Graph 2

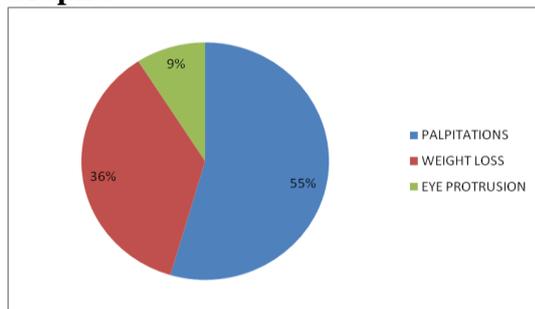


Among the symptoms occurring in hyperthyroidism, most common was palpitations with occurrence being 55%, followed by weight loss being 36% as depicted in table-2 and graph-3 respectively.

Table 2

Symptoms	Number	Percentage
Present	33	66%
Absent	17	34%

Graph 3

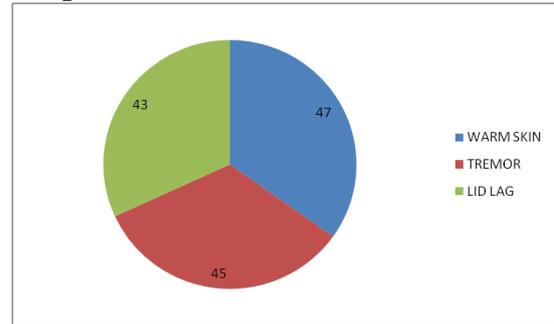


Among the hyperthyroid signs, most common was warm skin having prevalence of 94%, followed by tremors having prevalence of 90% followed by lid lag having prevalence of 86% as depicted in table-3 & graph-4 respectively.

Table 3

Symptoms	Number	Percentage(%)
Palpitations	18	55%
Weight Loss	12	36%
Eye Protrusion	3	9%

Graph 4



The most common thyroid eye sign was Dalrymple sign comprising of 98%, followed by Enroth's sign comprising of 94%, followed by Stellwag's sign being 92% as depicted in table-4 & graph-5 respectively.

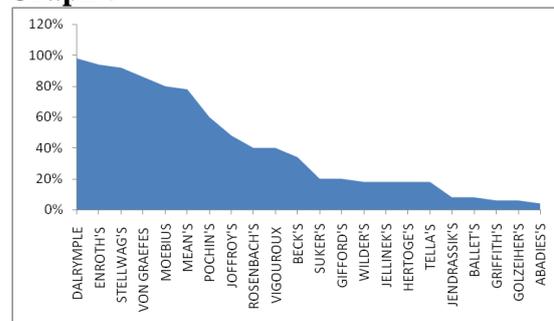
Table 4

Signs	Number	Percentage
Warm Skin	47	94%
Tremor	45	90%
Lid Lag	43	86%

Table 5

Signs	Percentage
Dalrymple	98%
Enroth's	94%
Stellwag's	92%
Von Graefes	86%
Moebius	80%
Mean's	78%
Pochin's	60%
Joffroy's	48%
Rosenbach's	40%
Vigouroux	40%
Beck's	34%
Suker's	20%
Gifford's	20%
Wilder's	18%
Jellinek's	18%
Hertoge's	18%
Tella's	18%
Jendrassik's	8%
Ballet's	8%
Griffith's	6%
Golzeiher's	6%
Abadies's	4%

Graph 5



DISCUSSION

From the above results it can be inferred that not every patient suffering from hyperthyroidism must necessarily have all the symptoms, signs and thyroid eye signs related to the disease. Similarly with a brief knowledge on knowing the most commonly occurring thyroid eye signs and symptoms a patient coming with following complaints can be suspected to have hyperthyroidism for which further evaluation and investigations can be carried out. Knowledge on such signs and symptoms will be handy in screening patients at mass medical health check-ups and camps. Once such patients are diagnosed further awareness and knowledge of hyperthyroidism can be imparted to the society at large thus reducing morbidity and mortality.

CONCLUSION

Our study showed that not all patients suffering from hyperthyroidism necessarily have symptoms and signs of it suggesting that a regular annual checkup of TFT along with noticing subtle changes in the body is essential to prevent one from hyperthyroidism.

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