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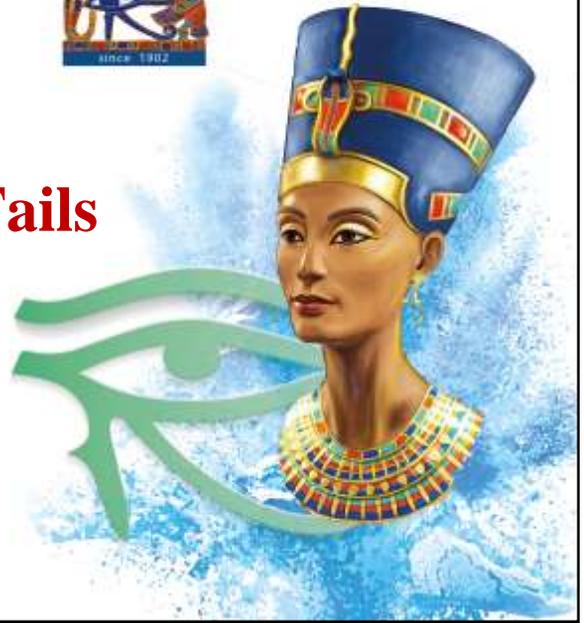


# TED, When Recession Fails

By

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## Introduction

### Active Phase

Lymphocytic infiltration

Congestion of orbital tissues

### Chronic Phase

Adipose tissue infiltration

Fibrotic changes of EOM

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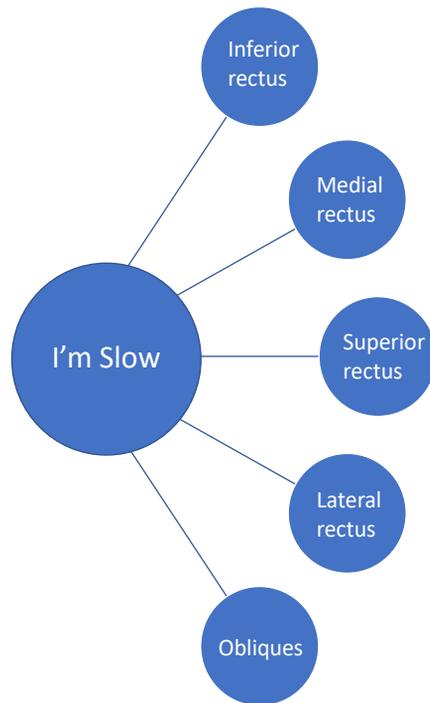
## Strabismus in TED

- **Affects 17-50 %**
- **Risk factors :**
  - ✓ Middle age
  - ✓ Women
  - ✓ Smoking ( smokers with TED – twice likely to need strabismus surgery)



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## Myopathy



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## Investigations

Thyroid  
function  
tests

Diplopia/  
Hess chart

Imaging ....



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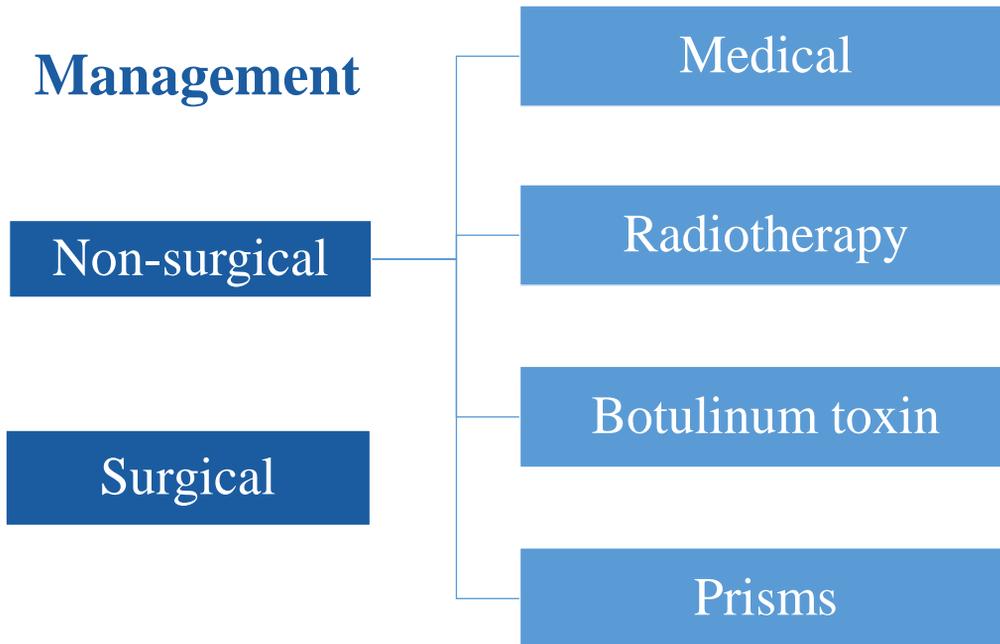
# Differential Diagnosis

- Cranial nerve palsies
- Myasthenia Gravis
- IOID
- Chronic Progressive external ophthalmoplegia
- Trauma (to EOM, orbital fracture)



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# Management



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## Surgery indications

Diplopia in primary position or down gaze

Chronic stage

Stable angle

Post orbital surgery, if planned



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## Surgical challenges

Incomitance ( focus on primary position and downgaze)

Tight bulky muscles ( use special hooks e.g., wright hook)

Friable conjunctiva

Surgical dose calculation ( consider Jampolesky dictum)

Higher rates of re-operation



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## Surgery

- The recession of the tight muscle/s and conjunctiva.
- Resection should be avoided as it is assumed to enhance the restriction.

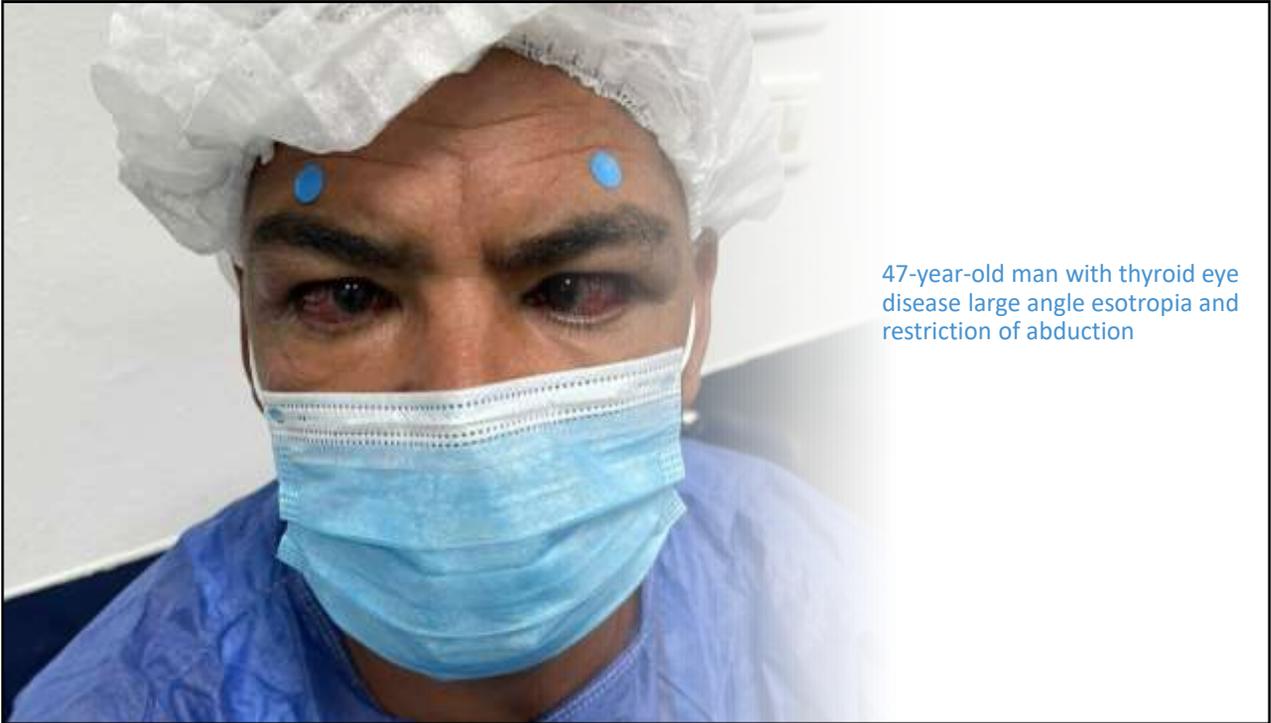


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## What if recession fails?



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47-year-old man with thyroid eye disease large angle esotropia and restriction of abduction

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BMR maximum recession resulted in under-correction and diplopia persisted

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- BLR resection offered good results

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## Lateral rectus muscle resection following maximal recession of the medial rectus muscle in thyroid eye disease



Eric Weldy, BS, and Natalie C. Kerr, MD

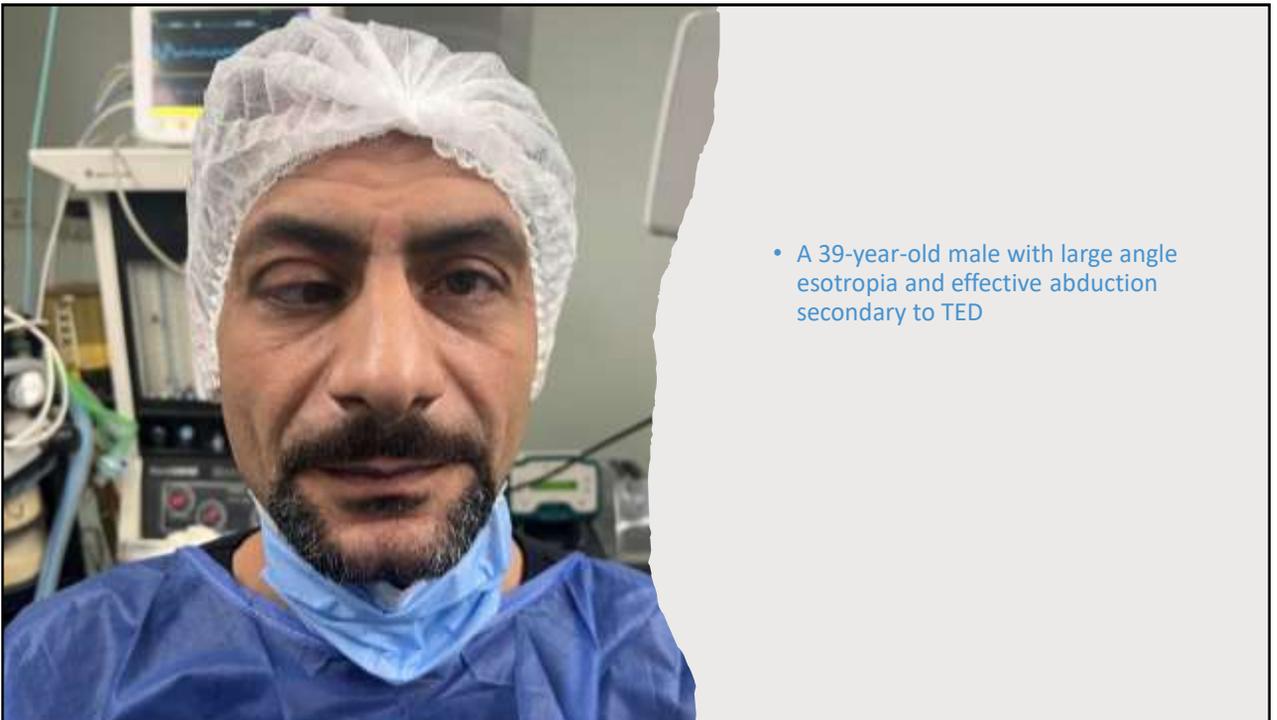
<b>BACKGROUND</b>	Rectus muscle restriction is a common finding in thyroid eye disease (TED). Typically, restricted muscles are recessed to address strabismus and diplopia. However, some patients have residual strabismus following maximal recession of a restricted muscle. The purpose of this study was to report outcomes following resection of the lateral rectus muscle after maximal recession of the medial rectus muscle in patients with TED.
<b>METHODS</b>	The medical records of patients with TED who underwent lateral rectus resection between 1998 and 2015 were reviewed retrospectively. Information regarding thyroid disease history and surgical treatment, including history of orbital decompressions, rectus muscle resections, rectus muscle recessions, and pre- and postoperative alignment was collected. Adjustable suture was used in all cases. Success was defined as a postoperative orthotropia with $\leq 2^{\Delta}$ of phoria at distance and a phoria at near.
<b>RESULTS</b>	A total of 11 patients were included. Of these, 10 (91%) required postoperative adjustment. A successful outcome was achieved in 10 cases (91%).
<b>CONCLUSIONS</b>	Lateral rectus muscle resection to address residual esotropia and diplopia was effective at reducing residual esotropia following medial rectus recession in our study cohort. (J AAPOS 2017;21:291-294)

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## What about ductions?



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- A 39-year-old male with large angle esotropia and effective abduction secondary to TED

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## Ocular ductions after rectus muscle recession and resection in thyroid eye disease

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### ABSTRACT

**Background:** Recession and resection of rectus muscles for correction of strabismus in Thyroid Eye Disease (TED) is relatively unpopular as it is assumed to enhance the restriction of ocular ductions. Therefore, the purpose of this study was to compare ductions of recession-only and recess/resect procedures.

**Methods:** We retrospectively reviewed the charts of 119 patients who underwent strabismus surgery for TED from 1991 to 2015, of which 102 were included in the present study. Forty-six interventions were performed on horizontal, 56 on vertical rectus muscles; comprising 41 recess/resect surgeries for horizontal deviations, and 7 in patients with vertical strabismus. Ocular ductions and alignment were evaluated preoperatively and at 3 and 12 months postoperatively.

**Results:** Both recessions as well as recess/resect procedures resulted in improved abduction and elevation, respectively. At the exam 3 months postoperatively, median abduction for the recession only group and the recess/resect group were 27.5° and 35°, respectively. The similar figures for elevation were 25° and 10°, respectively. Neither were statistically significant. No restricted adduction or depression was seen in the recess/resect surgeries groups with lateral or superior rectus resection. None of the patients showed unusual postoperative inflammation or conjunctival scarring.

**Conclusion:** In this retrospective analysis, we found an equal effect on ocular ductions in patients with TED when comparing recess/resect eye muscle surgery to recess only procedures. In TED patients with large horizontal angle deviations and abduction deficit, medial rectus recession and lateral rectus resection surgery can be considered. Muscle resections in TED do not seem to have a clinically relevant risk to increase the restriction of ocular ductions but rather improve ductions in the restricted directions of gaze.

### KEYWORDS

Thyroid eye disease; Graves' ophthalmopathy; squint surgery; recession; resection; ocular ductions

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## What about vertical deviations?



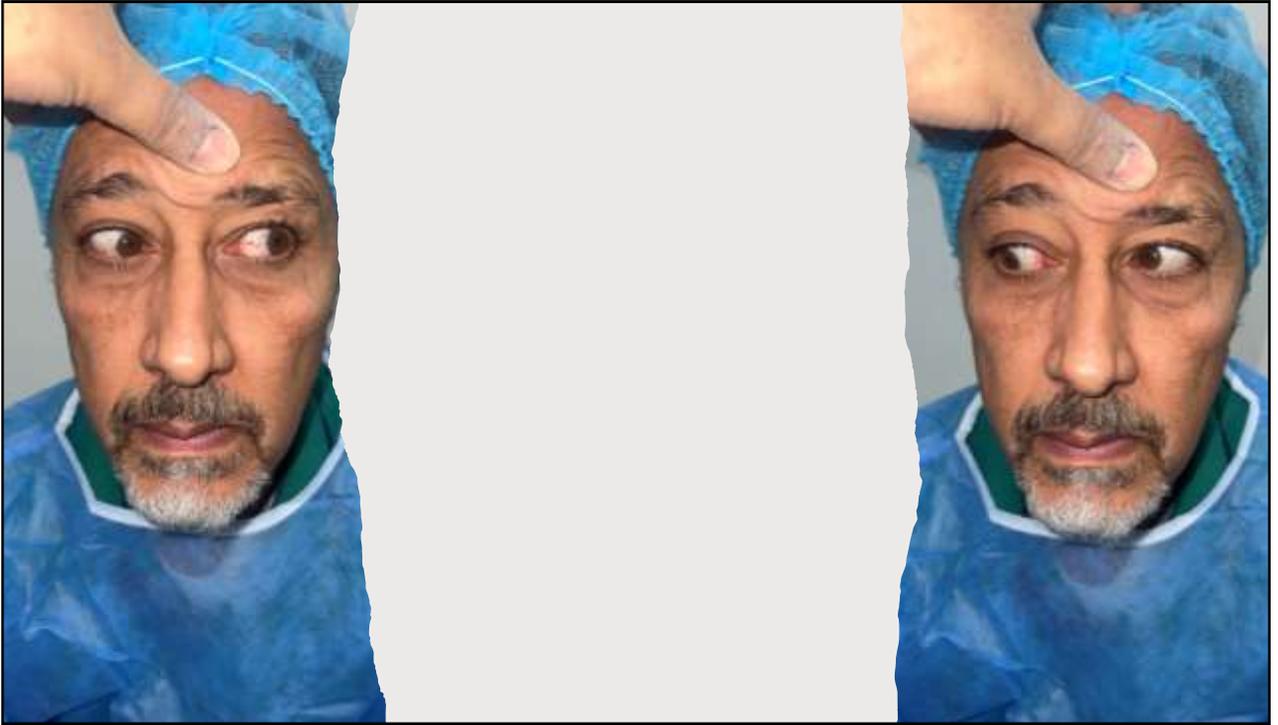
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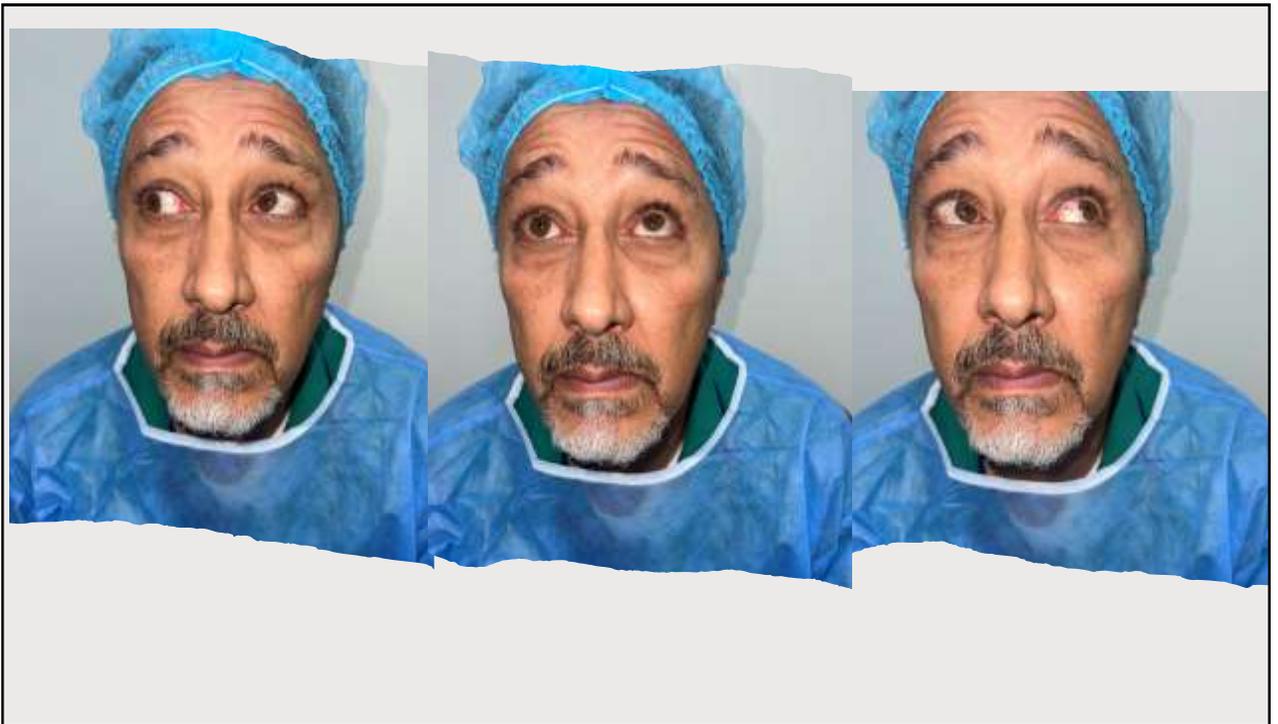
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# Is a large IR recession a good option?



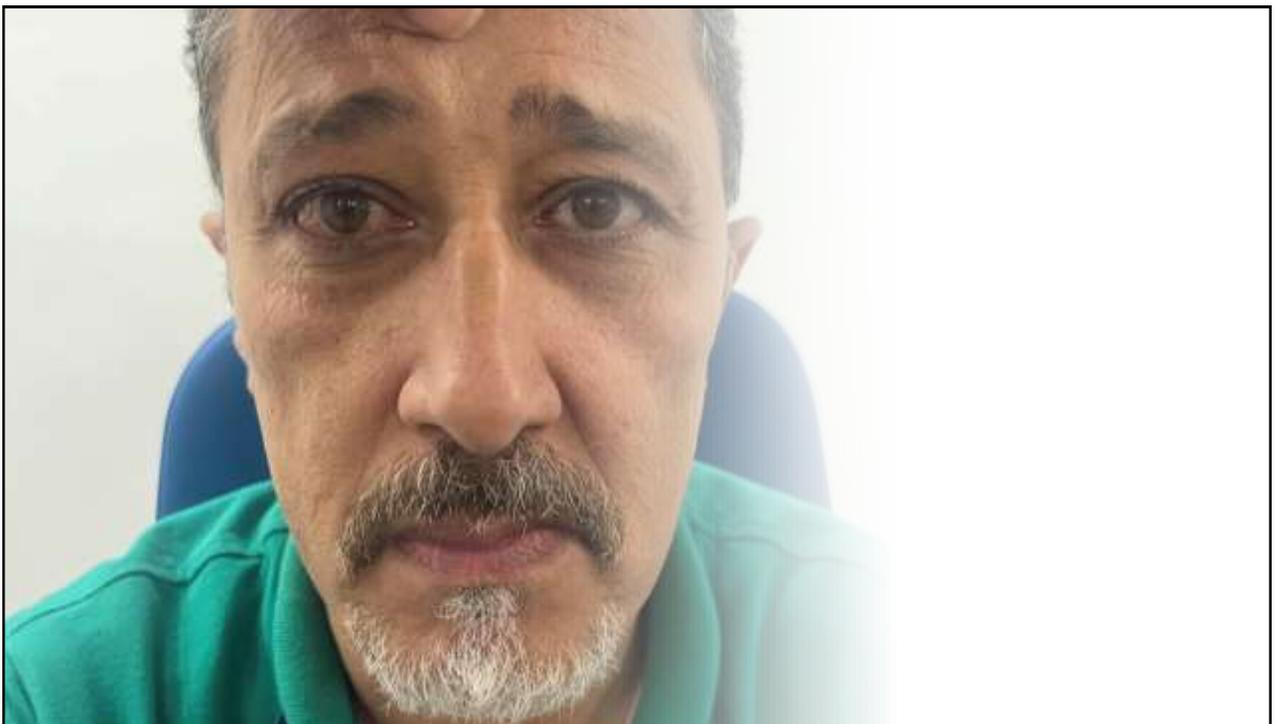
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STRABISMUS  
<https://doi.org/10.1080/09273972.2018.1444067>

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ORIGINAL ARTICLE

Check for updates

## Rectus Muscle Resection for Vertical Strabismus in Thyroid Eye Disease

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**ABSTRACT**

**Purpose:** Rectus muscle resection in thyroid eye disease (TED) is generally avoided due to the risk of worsening restriction or reactivating inflammation. However, for some patients with large-angle strabismus or diplopia in primary gaze despite maximum recession surgery, rectus muscle resection may be beneficial. We report our surgical experience with rectus muscle resection in the management of vertical strabismus associated with TED.

**Methods:** Retrospective review of eight patients with TED and vertical diplopia who underwent vertical rectus muscle resection by a single surgeon (IBM) at a tertiary referral centre in Liverpool, UK, from 2001 to 2013. The goal of surgery was elimination of diplopia in primary and reading position. Vertical deviations were measured in prism dioptres (Δ) before and after surgery at one month, four months and final visit by prism alternate cover testing at 1/3 m and 6 m.

**Results:** The mean ± standard deviation vertical deviation for near and distance reduced significantly from 14.2<sup>Δ</sup> ± 8.4<sup>Δ</sup> and 15.8<sup>Δ</sup> ± 8.8<sup>Δ</sup> pre-operatively to 5.7<sup>Δ</sup> ± 4.9<sup>Δ</sup> and 6.7<sup>Δ</sup> ± 7<sup>Δ</sup> at the four-month visit, respectively (*p* < 0.05). At the four-month follow-up, five (62.5%) patients achieved binocular single vision in primary and reading position with either no prisms or prisms less than 5<sup>Δ</sup>. Further recession surgery, Harada-Ito procedure, or lateral rectus resection were necessary in four (50%) patients with persistent diplopia. No patient developed recurrence of inflammation or increased muscle restriction.

**Conclusions:** Vertical rectus resection could be considered as an additional surgical strategy in the management of TED patients with vertical strabismus without adverse sequelae.

**KEYWORDS**  
 Diplopia; resection; thyroid eye disease; vertical strabismus

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## Take home message

**“Resection is contraindicated in the treatment of thyroid myopathy”**

**This rule should be reconsidered**



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**THANK YOU**

*See you next year*

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