

# Outcomes of cataract surgery in patients previously treated with orbital radiotherapy



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## INTRODUCTION

- External beam radiotherapy (EBRT) is used to treat various orbital and ocular diseases.
- These include thyroid eye disease, lymphoma and choroidal metastasis.
- A common side effect of orbital EBRT is cataract. [1]
- The risk of complications following cataract surgery in this cohort is poorly understood. [2]

## AIMS

- This study aims to quantify the risks of cataract surgery in patients who have previously undergone EBRT.

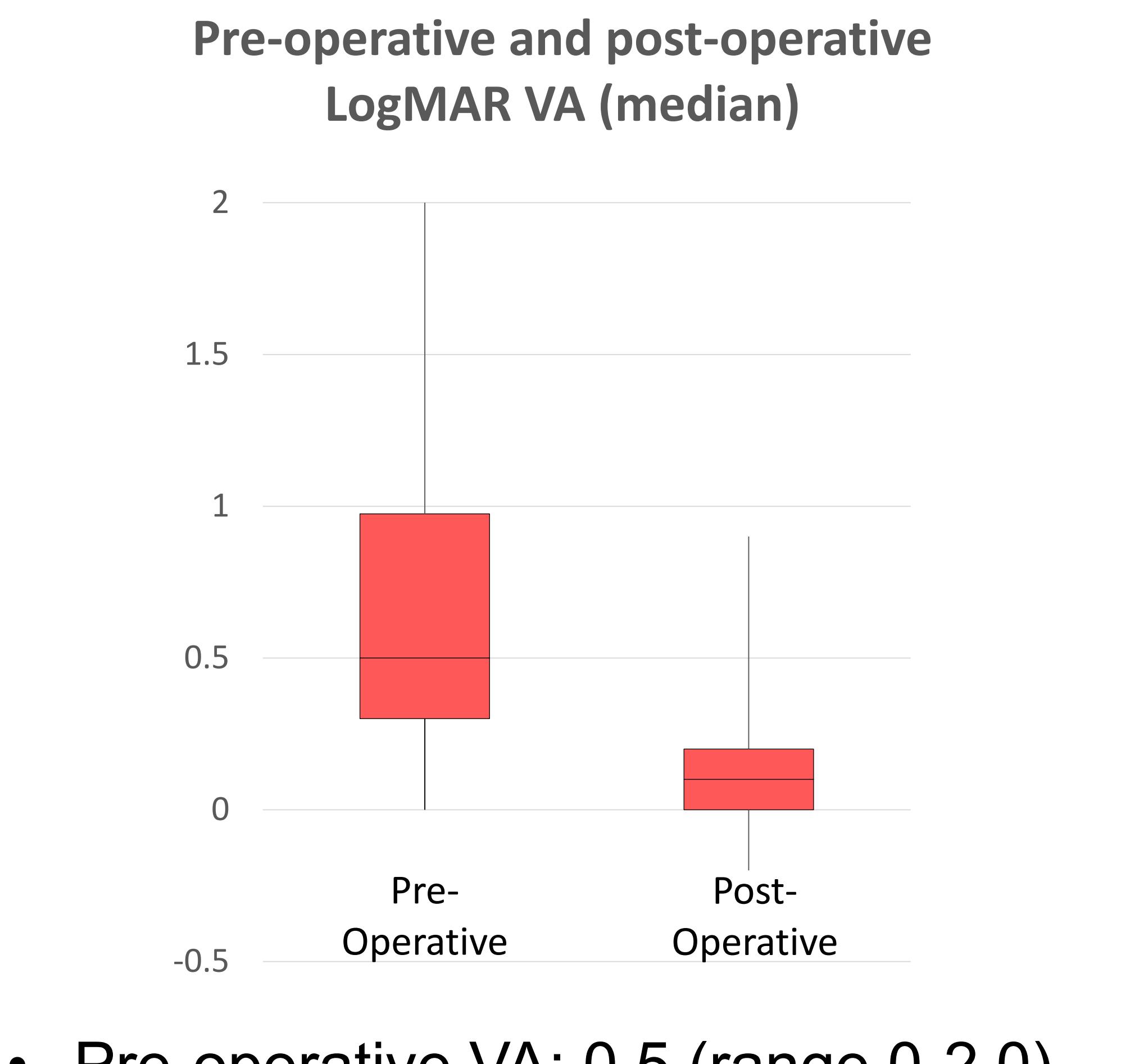
## METHODS

- Patients treated with orbital EBRT at the Beatson West of Scotland Cancer Centre between 2001 and 2019 were identified
- Clinical records were reviewed to identify those who had subsequently undergone cataract surgery.
- Pre- and post-operative case records, and operation records, were reviewed to identify demographic data, and data regarding complications and surgical outcomes.

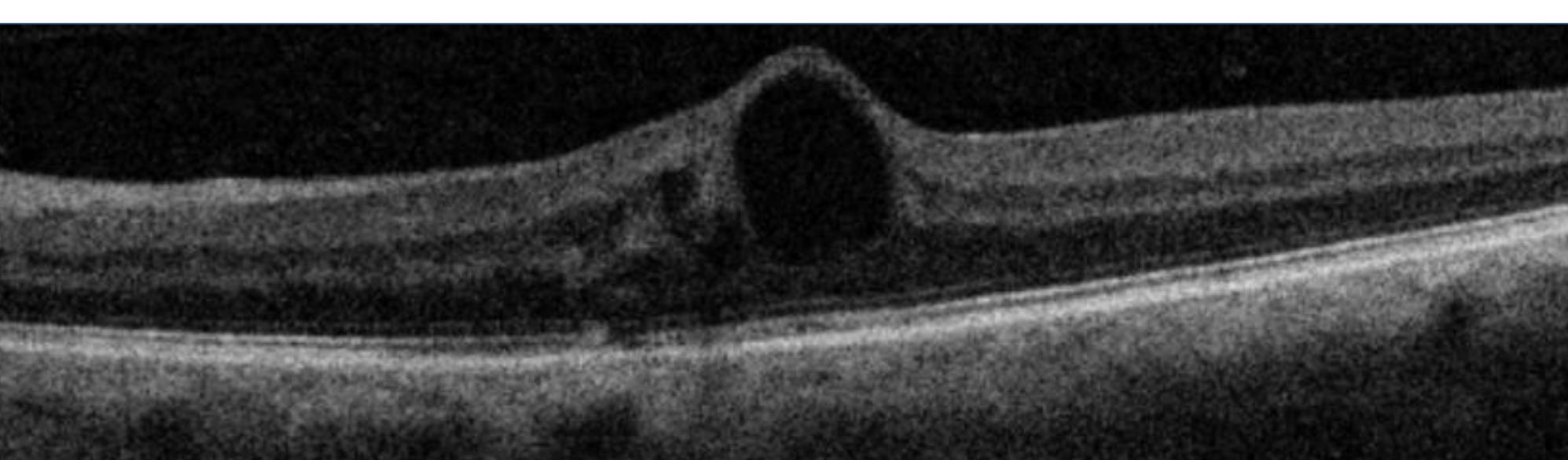
## DEMOGRAPHICS

- 502 individuals treated with radical or palliative EBRT to the orbit
- 62 eyes of 43 patients (8.6%) had cataract surgery
- Full operative record in 46 eyes of 33 patients for further analysis
- Radiation dose (mean): 27.8Gy (range 10-65)
- 64% (n=21) of patients were female
- Mean age of patients at time of first eye cataract surgery was 70 (range 46-92) years old.

## RESULTS



- Pre-operative VA: 0.5 (range 0-2.0)
- Post-operative VA: 0.1 (-0.2 to 0.9)
- Visual gain (LogMAR): 0.4 (-0.9 to 1.9).
- Pre-op vs post-op VA: one-way ANOVA  $p<0.01$



OCT demonstrating cystoid macular oedema

- There was one case of posterior capsule (PC) rupture with vitreous loss (2%).
- Dense PC plaque was noted intra-operatively in 19.5% (n=9).
- 13% (n=6) required Nd:YAG laser posterior capsulotomy.
  - 2.4 to 10.9% in general population post-op [3]

## CMO

### 6 cases (13%, 5 patients)

- None in cases with pre-existing radiation retinopathy
- One case of pre-existing diabetes (and despite prophylactic post-operative nepafenac).
- 1 patient required corneal suture; no other intra-operative complications
- Rates of CMO in NOD dataset 1.0-1.25% [4]

### Outcomes

- 4 cases resolved completely (with topical treatment)
- 1 case required repeated courses of topical treatment (final BCVA 0.2 LogMAR)
- 1 case persisted (final VA 0.9 LogMAR, reduction of 0.7)

## DISCUSSION

- Visual outcomes following cataract surgery are similar in this cohort of patients to those obtained in a nationwide cohort undergoing routine phacoemulsification. [4]
- EBRT is associated with an increased incidence of intra-operative PC plaque, post-operative CMO (which in most cases settled with treatment), and need for posterior capsulotomy.

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