2RT FOR EARLY AMD: CASE STUDY 2
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81-year old female patient with bilateral confluent soft drusen and pigmentary change. Past history of bilateral cataract surgery. MAIA macular function assessment indicated significant functional defect at majority of sensitivity points. Treatment with 2RT® resulted in drusen resolution and concurrent improvement in BCVA and contrast sensitivity.
PRE-TREATMENT STEPS: MAIA
MAIA microperimetry was applied in customized expert mode over the 1-6° field.
Test conducted prior to 2RT and follow-up 4/12 post 2RT (refer to Table 1).

TREATMENT STEPS: 2RT
Average treatment power was 0.30 mJ (refer to Table 2.)
12 laser spots were delivered in a circle outside the macula, with laser spots not observable on color fundus.

TREATMENT OUTCOME
At 9/12 post 2RT, clear resolution of drusen was observable on the OCT scan with concurrent improvement in MAIA sensitivity (refer to Figure 1-3). At 14/12 post 2RT MAIA threshold improvement was also noted (refer to Figure 2).

"2RT nanosecond pulse laser has demonstrated an effective intervention for drusen regression and improvement in macular function."

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**TABLE 1: MAIA PARAMETERS AND OUTCOMES**

- Examination Mode; Customized Expert Test with 36 stimuli surrounding the central (degree)
- Projection strategy: 4-2
- Average Sensitivity: 21.9 Pre-Rx
  24.8 post-Rx
- Macular Integrity: 99.8 Pre-Rx
  88.9 Post-Rx
- Fixation stability: Stable (P1=99%, P2=100%) Pre-Rx, Stable
  Stable (P1=90%, P2=98%) Post-Rx
- BCVA:
  63% = 0.3",
  95% = 3.0" Pre-Rx
  63% = 0.7" Post-Rx
  95% = 65.8" Post-Rx
- Fixation Location (PRL): Central
- Test Duration:
  6’ 4” Pre-Rx
  5’ 21” Post-Rx

**TABLE 2: 2RT PARAMETERS**

- Wavelength: 532 nm
- Spot size on slit lamp adapter: 400 µm
- Contact lens: Volk Area Centralis
- Power (Avo): 0.30 mJ
- Exposure duration: 3 ns
- Application of circle outside the macula of 12 laser spots

**FIGURE 1: Pre-2RT**

**FIGURE 1: 9/12 Post -2RT**

**FIGURE 2: Pre-2RT**

**FIGURE 2: 14/12 Post-2RT**

**FIGURE 3: Pre-2RT**

**FIGURE 3: 14/12 Post-2RT**
2RT® DIABETIC CSME TREATMENT GUIDELINES

IMPORTANT: The following treatment guidelines are based on the procedures reported in the evidence-based literature\(^1\) and are provided for information purposes only.

1. PATIENT SELECTION

2RT (Retinal Rejuvenation Therapy) is indicated for Clinically Significant Macular Edema (CSME) due to Diabetic Retinopathy.

For the purpose of these guidelines, a patient is considered to have clinically significant macular edema (CSME) when one of the following characteristics is present upon clinical examination:

1. Any retinal thickening within 500 microns of the center of the macula.
2. Hard exudates within 500 microns of the center of the macula, with adjacent retinal thickening.
3. Retinal thickening of at least 1 disc area in size, any part of which is within 1 disc diameter of the center of the macula.\(^3\)\(^4\)

2RT is contraindicated in any situation where the view of the target tissue (retinal pigment epithelium [RPE]) is compromised or limited.

2. PRE-TREATMENT

Apply a topical mydriatic and local anaesthetic drops into the conjunctival sac of the eye to be treated.
It is recommended that patients should be able to achieve a 5 mm pupil dilation.

3. TREATMENT

A. Set-Up:
Position the patient's head on the chinrest of the 2RT laser system.
Position and focus the slit lamp microscope including the eyepiece dioptrre settings to observe the eye to be treated.

B. Contact Lens:
Use of a contact lens that approximates a 1:1 conversion ratio, such as Area Centralis, for observation and laser application.

2RT, Retinal Rejuvenation
3. TREATMENT (CONTINUED)

C. Power Setting:
Apply test applications of single laser pulses spaced approximately one laser spot diameter (400 microns) apart outside the arcades while increasing the power until a faintly visible blanching of the lasered spot is observed.

- Do this by initially setting the power to the minimum 0.1 mJ and increase by two steps to 0.3 mJ. If necessary, increase the power by an additional one step until the blanching point is reached. It is recommended to not increase power beyond 0.4 mJ.

- Reduce the power by one step of this blanching point setting and then apply the laser in the outer macula, as described on the following page.

D. Spot Placement:
The evidence-based literature reported treatment success using a loose grid laser pattern to the area of edema (one laser spot diameter apart).\(^1\)\(^2\) (Refer to Figure 1.)

Do not place laser applications within 500 microns of the fovea.

Do not place laser applications closer than one disc diameter from the edge of the optic disc.

4. POST-TREATMENT

Periodic re-check of treated eye to be determined by treating ophthalmologist.

5. OBSERVABLE SIDE EFFECTS

No treatment-related adverse events have been reported in the evidence-based literature. However, one case of intraoperative retinal discolouration (which resolved), likely due to excessive levels of power, was noted.\(^2\)

REFERENCES
3. 2RT Operator Manual
ABOUT 2RT
Retinal Rejuvenation Therapy

A non-thermal laser therapy, Retinal Rejuvenation Therapy (2RT®) stimulates a natural, biological healing response in patients with early Age-Related Macular Degeneration (AMD). Clinical and scientific studies have demonstrated the ability of 2RT® to improve retinal function and to halt or delay the degenerative processes that cause retinal disease. Specifically, 2RT® has been shown to reduce drusen and can produce bilateral improvements in macular appearance and function in high-risk early AMD patients.(1)

2RT® utilizes solid-state, nanosecond laser technology delivered through a patented beam profile. This breakthrough treatment approach selectively targets individual organelles (specialized cells) within the retinal pigment epithelium (RPE) in order to induce a therapeutic effect without causing thermal damage to the underlying Bruch’s membrane and overlying photoreceptors.(2)


ABOUT THE PHYSICIAN
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Dr. Worsley specializes in medical and surgical retina and was responsible for introducing vitreoretinal surgery to the Waikato Public Hospital in 1991. In private practice at Hamilton Eye Clinic, Dr. Worsley is also a visiting specialist at Waikato Public Hospital. He holds Clinics in both Thames and Whangamata in order to provide much-needed support to patients in the greater Waikato region. Dr. Worsley is a medical advisory board member for the Macular Degeneration New Zealand and Retina New Zealand.

Opinions and treatment technique presented in this case report are those of the contributing author.

2RT® has a CE Mark (Conformité Européenne) and is included on the Australian Register of Therapeutic Goods (ARTG) for the indication of early AMD, where it can produce bilateral improvements in macular appearance and function. It also has a CE Mark (Conformité Européenne) and US Food and Drug Administration (FDA) (510k) market release for the treatment of Clinically Significant Macula Edema (CSME).

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