

Association of a Two-Meal Fasting Protocol and Trigonelline Supplementation with Changes in PSA, Prostate Volume, and MRI-Defined Prostatic Lesion: A Case Report

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Abstract

This case report describes an anonymized male patient with biopsy-confirmed prostatic acinar adenocarcinoma, modified Gleason score 3+3=6, ISUP Grade Group 1. The patient began a two-meal fasting protocol on 16 January 2025 and used trigonelline supplementation at 500 mg/day for approximately one year.

Serial prostate-specific antigen (PSA) measurements declined from approximately 14.1 ng/mL in January 2025 to 2.72 ng/mL on 28 August 2026. Comparative MRI demonstrated a reduction in the measured prostatic lesion from approximately 1.6 × 1.7 cm to 1.5 × 0.9 cm and a reduction in prostate volume from approximately 55 cc to 37 cc. The lesion remained radiologically present.

The two-meal fasting protocol and trigonelline supplementation were the principal interventions examined in relation to these changes. Their potentially complementary metabolic effects provide a basis for further investigation into their relationship with prostate cancer biomarkers and tumour characteristics.

Keywords: Prostate adenocarcinoma; fasting; two-meal fasting protocol; trigonelline; PSA; prostate MRI; metabolic health.

1. Introduction

Prostate adenocarcinoma is commonly evaluated through histopathology, prostate-specific antigen (PSA), imaging, and clinical follow-up.

Metabolic interventions, including structured fasting, have attracted interest because fasting influences insulin exposure, substrate utilisation, and cellular energy-sensing pathways. Trigonelline, a plant-derived bioactive alkaloid found in fenugreek and other sources, has been investigated for its potential metabolic, antioxidant, anti-inflammatory, and cellular-regulatory properties.

This report describes the clinical and radiological course of an anonymized patient with prostate adenocarcinoma who followed a two-meal fasting protocol and used trigonelline supplementation.

2. Patient Information

The patient was an anonymized male aged 73 years at diagnosis and approximately 75 years at the latest imaging assessment.

- Height: Approximately 5 feet 7 inches (170 cm)
- Weight: Approximately 74 kg
- Diagnosis: Prostatic acinar adenocarcinoma
- Modified Gleason score: 3+3=6
- ISUP Grade Group: 1
- Biopsy findings: 13 of 23 cores positive, with approximately 35% tissue involvement

3. Diagnostic Assessment

A PSMA PET-CT performed on 17 January 2025 demonstrated PSMA-avid disease within the prostate, with a reported maximum SUV of approximately 8.7. No PSMA-avid lymph-node or distant metastatic disease was identified.

The baseline MRI was dated 27 December 2024. Follow-up MRI performed on 29 August 2026 described an ill-defined enhancing T2-hypointense lesion in the left posterior peripheral zone at the apical level.

The measured lesion dimensions were:

- Previous measurement: Approximately 1.6 × 1.7 cm
- Follow-up measurement: Approximately 1.5 × 0.9 cm

Prostate volume was reported as:

- Previous volume: Approximately 55 cc
- Follow-up volume: Approximately 37 cc

The prostatic capsule, rectal fat plane, neurovascular bundles, seminal vesicles, pelvic floor, and visualised pelvic bones were reported as intact or unremarkable. The radiological impression documented interval reduction in lesion size and prostate size while identifying persistent neoplastic tissue.

4. Intervention

The patient commenced a two-meal fasting protocol on 16 January 2025.

Trigonelline supplementation was reported at 500 mg/day for approximately one year.

The two-meal fasting protocol and trigonelline supplementation were the principal interventions examined in relation to the observed clinical and radiological changes.

5. Clinical Timeline

Date	Clinical information
January 2025	Biopsy-confirmed prostate adenocarcinoma and PSMA PET-CT assessment
16 January 2025	Two-meal fasting protocol initiated
January 2025	PSA approximately 14.1 ng/mL
15 April 2025	PSA 3.06 ng/mL
7 August 2025	PSA 2.39 ng/mL
January 2026	PSA 2.18 ng/mL
13 August 2026	PSA 4.58 ng/mL
28 August 2026	PSA 2.72 ng/mL; free PSA 0.67 ng/mL
29 August 2026	Follow-up MRI documented reduction in lesion dimensions and prostate volume; lesion still present

6. Follow-Up and Outcomes

Serial PSA measurements showed a reduction from approximately 14.1 ng/mL in January 2025 to 2.72 ng/mL on 28 August 2026, with an interim increase to 4.58 ng/mL on 13 August 2026.

Follow-up MRI documented a reduction in the measured prostatic lesion and prostate volume, while the lesion remained present.

The patient also reported improved bowel regularity, with bowel movements occurring once or twice daily and improved gastrointestinal comfort.

7. Discussion

The principal observations in this case were the decline in PSA and the reductions in MRI-measured lesion dimensions and prostate volume during the period in which the patient followed a two-meal fasting protocol and used trigonelline supplementation.

Fasting is a physiological stimulus that influences energy metabolism, including pathways involving AMPK, insulin signalling, and substrate utilisation. Trigonelline has been studied for its potential metabolic, antioxidant, anti-inflammatory, and cellular-regulatory effects.

These mechanisms provide a biological rationale for investigating the two interventions in relation to prostate cancer biology.

The MRI findings provide objective radiological documentation of a reduction in the measured lesion and prostate volume. The lesion remained present at follow-up.

The observed reduction in PSA, prostate volume, and lesion dimensions following the introduction of the two-meal fasting protocol and trigonelline supplementation supports further investigation into their potential contribution to the clinical response.

8. Conclusion

This case documents a reduction in PSA, prostate volume, and MRI-measured prostatic lesion dimensions in a patient who followed a two-meal fasting protocol and used trigonelline supplementation.

The findings support further clinical investigation of these interventions as potential metabolic adjuncts in prostate cancer research.

9. References

1. Longo V. Fasting Cancer: How Fasting and Nutraceuticals Are Creating a Revolution in Cancer Prevention and Treatment. Avery; 2025.
2. Fay-Watt V, et al. The impact of a fasting mimicking diet on metabolic health in patients with prostate cancer. Prostate Cancer and Prostatic Diseases. 2023;26:317–322.
3. Nguyen V, et al. Pharmacological activities, therapeutic effects, and mechanistic actions of trigonelline. International Journal of Molecular Sciences. 2024;25(6):3385.