

Date: August 23rd, 2020

Reference: Mr.

DOB:

Dear Mr.

Thank you for giving me the opportunity to review your case. You asked for information about the comparative effectiveness of various external beam radiation options in treatment of Prostate Cancer.

The following is a report prepared for Mr. based upon my review of the available medical records provided in your MyUSADr. Medical opinion request.

CC- Mr is a 59 year old male with a palpable T3N0 prostate cancer with Gleason 9 and a PSA 4.3ng/ml

HPI

1. Undergoing routine PSA screening PSA in 2018 of 5.8ng/ml
2. 11/01/2018 Prostate biopsy 12 cores-
Left base Gleason 3+4 50% only 1 out of 2 cores, PNI
R apex high grade PIN
3. 2/27/2019 MRI prostate without gad with ADC multiparametric, with small field of view, with dynamic enhancement- L peripheral zone lesion at the interface of base and mid gland- no frank ECE, apical peripheral zone Pirads 4
4. Offered EBRT vs brachytherapy- no treatment performed
5. 3/12/2020 MRI prostate- with ADC multiparametric, with small field of view, with dynamic enhancement-
With comparison to a 2/25/2019 scan- shows a left peripheral zone with early extracapsular extension, and possible seminal vesicle involvement
6. 6/11/2020 US guided biopsy of the prostate with MRI fusion of L new peripheral zone lesion Prostate gland volume at 28cc
PSAD 0.16
PSA 4.3 ng/ml

7. 6/11/2020 Pathology Gleason 4+5, 5/5 cores involved with max core involvement of 60%, with invasion of extraprostatic fat
8. Currently planned for ADT (androgen deprivation therapy and radiation treatment

AUA score 2

SHIM 24

No GI complaints

PMH

1. Herniated disc
2. Polyps on colonoscopy- 2.5 years
3. No hx of IBD

FMH

1. Father died of pancreatic ca
2. Mother died of bladder cancer

Social History

ETOH-10 beers a week

Married lives with his wife

Exercise- Cardiovascular 4 times a week and weight lifts 3x a week

Medications

1. Vitamin B12
2. Probiotics
3. Vitamin D and K
4. B complex
5. Pygeum

PSA Results

5/28/14- 1.0

7/28/15- 1.3

11/19/15- 1.6

3/10/2016- 1.5
2/14/2017- 2.4
7/10/2017- 3.0
3/16/2018- 3.6
10/5/2018- 5.8
12/31/2018- 5.8
4/19/2019 -5.4

8/19/2019 -5,3
12/5/2019- 4.4

Assessment

Mr is a 59 year old male with a palpable T3N0 prostate cancer with Gleason 9 and a PSA 4.3ng/ml

NCCN guidelines would consider this a **high risk localized prostate cancer**- considering the Gleason 9 and T3/ExtraCapsular involvement

Life expectancy- 23.7 years

Plan

1. Treatment options
 - a. External beam radiation (EBRT) (7-9 weeks of radiation)and Androgen Deprivation Therapy (ADT) for 1.5 years- 3 years
 - b. External beam radiation (5 weeks) plus brachytherapy plus ADT for 1-3 years
 - c. Surgical excision plus lymph node dissection- which will likely be followed by radiation and likely ADT

Recommendations-

The combination of EBRT plus brachytherapy plus ADT represents a more aggressive treatment option and has been shown to provide a better biochemical control (i.e. PSA control) compared to EBRT + ADT without brachytherapy. This has become the standard of care according to some guidelines.

(<https://pdfs.semanticscholar.org/3cd0/e10e13f57695c8c0b9e5f1d95931884e7a4f.pdf>)

However an increase in risk of long term toxicity with this brachytherapy boost has been noted. ([https://www.redjournal.org/article/S0360-3016\(17\)30008-1/fulltext](https://www.redjournal.org/article/S0360-3016(17)30008-1/fulltext)) and no survival benefit has been shown. (<https://ascopubs.org/doi/10.1200/JCO.2018.78.6236>)

A less aggressive approach with equal survival outcomes would be EBRT with 2-3 years of ADT. This has equivalent survival benefit and lower risk of long term GI and GU side effects

This patient has excellent pretreatment urinating function and with most likely tolerated both options well. It is important that the provider who performs the brachytherapy has a vast and current experience with this technique

2. Radiation treatment techniques

- a. Protons- This technology will lower the total dose of radiation to the surrounding tissues. There remains significant debate if there is benefit to protons for prostate cancer over IMRT. Current evidence has not shown a significant benefit and the outcomes appear the same. <https://pdfs.semanticscholar.org/3cd0/e10e13f57695c8c0b9e5f1d95931884e7a4f.pdf>- This resource is not widely available, and I would not recommend traveling for it. In addition in this patient case the possible benefit of protons seems limited as the amount of radiation from the external component is reduced as the patient is planned for brachytherapy.
- b. IMRT- Intensity Modulated Radiation is a well established technique which has been shown to reduce toxicity in patients receiving radiation over the older 3D conformal technique. <https://pubmed.ncbi.nlm.nih.gov/24113055/>. In addition strong consideration should be given to radiation of the patient pelvic lymph nodes (see below). In that setting IMRT will likely lead to lower dose to the small bowel. <https://pubmed.ncbi.nlm.nih.gov/11020560/>.
- c. SBRT- Stereotactic body radiation- is using 5 fractions of high dose of radiation to the prostate. This is a promising technique which is very convenient for patients. However, this treatment as a standalone treatment would not be appropriate for this patient and his high risk prostate cancer. Some centers are using SBRT in combination with IMRT, but the data is very preliminary. I would not recommend this option.

3. IGRT- image guided radiation- allows for daily localization of the radiation treatment and improves accuracy as the prostate gland, bladder and rectal filling can vary daily. Multiple solutions are available to help with prostate targeting including on board CT scan, fiducial markers and Ultrasounds. Evidence points to a reduction in toxicity and improved outcomes with IGRT. <https://pubmed.ncbi.nlm.nih.gov/30071296/>
4. Pelvis Lymph nodes- some controversy exists about the need to give radiation to the pelvis lymph node in the setting of no pathologic nodes on MRI scan. No randomized study has shown a benefit of whole pelvis lymph nodes. <https://pubmed.ncbi.nlm.nih.gov/17531401/>. However in patients with gleason 9 cancer there is likely >15% chance of pelvis lymph node involvement as such it is reasonable to recommend treatment to the lymph nodes.
5. ADT- androgen deprivation therapy
 - a. This treatment works by lowering the testosterone level of the patient, as the cancer is fueled by the testosterone. It has been well established to be an effective agent in improving overall survival in patients with high risk prostate cancer over Gleason 8. This is strongly recommended in this patient case.
 - b. Length of therapy- There remains controversy about the length of ADT most guideline advocates for 2-3 years. However, if patients are tolerating the ADT poorly then as short as 18 months could be used. https://ascopubs.org/doi/10.1200/JCO.18.00606?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed
 - c. Mitigation steps- ADT is associated with multiple side effects including loss of libido, loss of muscle mass, hot flashes, breast tenderness, fatigue, cardiovascular events, diabetes and possible memory loss (less of a concern in this patient)
 - i. Patients need to be encouraged to take daily calcium 1000mg-1200mg and Vitamin D 400-1000 IU.
 - ii. FRAX score- will likely be very low (I dont have the patient high or weigh) If it is elevated would recommend a dexa study.
 - iii. Resistance training (2 a week) in addition to cardiovascular training (150 minutes of moderate work) should be be encouraged to decrease the risk of muscles loss



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Thank you Mr. for allowing me to review your records and assist you with your medical condition. Best wishes for a quick recovery. Please feel free to contact me at any time to discuss my review and/ or the results of the recommended workup.

Sincerely,

Evan Landau, MD

Diplomate American Board of Radiation Oncology

Legal Disclaimer: The Report is an opinion of a medical expert based on the medical information regarding your case that you provide us. The physician rendering the Medical Report will not have the benefit of examining you in person, the ability to order additional tests, or have any information beyond what you provide. The Report is intended to provide you with information to supplement the information you have already received from your treating physicians. The information contained in the Expert Medical Opinion Report shall not be used to substitute for your physician's recommendations. You should discuss the Report with your own doctors, who are responsible for your care.