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An Ayurvedic Approach In Managing Prostatic Adenocarcinoma - A Single Case Report

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ABSTRACT:

Prostate Adenocarcinoma is one of the most common cancers affecting older men. Incidence Rate is nearly 60% in over the age of 65 years and 1 in 350 men under the age of 50years suffer from Prostate Adenocarcinoma .Prostate cancer (PCa) has traditionally been diagnosed by digital rectal examination (DRE) and Prostate-Specific Antigen (PSA) blood test, followed by Transrectal Ultrasound (TRUS) guided biopsy.[(1)] In contemporary science, temporary symptomatic treatment, Prostate Brachytherapy and External Beam Radiation Therapy, High Intensity Focused Ultrasound (HIFU), Chemotherapy and Surgery is the treatment of choice for Prostate Adenocarcinoma. [(2)] A 75 years old male a known case of Prostate Adenocarcinoma with metastasis of Spine (has undergone orchidectomy 10 years back) was managed by adapting Mrudu Virechana followed by Shamanaoushadhis. The Criteria of assessment were based on the scoring of Karnofsky Performance Scale Index, VAS Scale and Prostate-specific Antigen Test. Following the completion of Ayurveda treatment, there was a significant improvement in the symptoms, enhanced quality of life and a notable reduction in Prostate specific Antigen levels within course of 3 months. This case underscores the effectiveness of Ayurveda management in treating Prostatic Adeno Carcinoma

Keywords: *Prostate Adenocarcinoma, Prostate-Specific Antigen (PSA), Transrectal Ultrasound (TRUS), Radiotherapy, Chemotherapy, Mrudu Virechana, Shamanaoushadhis*

INTRODUCTION:

Prostate Adenocarcinoma is one of the most common cancers affecting older men. Incidence Rate is nearly 60% in over the age of 65 years and 1 in 350 men under the age of 50years suffer from Prostate Adenocarcinoma. Prostate cancer (PCa) has traditionally been diagnosed by Digital Rectal Examination (DRE) and Prostate-Specific antigen (PSA) blood test, followed by Transrectal Ultrasound (TRUS) guided biopsy. [(1)] Treatment for prostate cancer may involve active surveillance, radiation therapy including Prostate Brachytherapy and External Beam Radiation Therapy, High Intensity Focused Ultrasound (HIFU), chemotherapy and surgery. [(2)] Orchiectomy is the surgical removal of the testicles. Bilateral Orchiectomy is done to stop most of the body's production of Dihydrotestosterone (DHT), which is said to be responsible for the tissue proliferation in the prostate, a contributing factor in the development of prostate cancer. It is said that size if the prostate shrinks after bilateral Orchiectomy. [(3)] Most of the cases of prostate cancer are slow growing but few of them are aggressive and may metastasise early to various organs and skeleton. In such advanced cases, Modern/ Conventional medicine has very minimal role to play except Hormone Therapy/ Palliative Chemotherapy and Radiotherapy. [(4)]

CASE REPORT:

A 75 years old male visited to Kayachikitsa OPD of JSS Ayurveda Medical College with the complaints of excessive Urination, Occasional Passing of Clots in the Urine associated with pain in lower back region, right scapular region, difficulty in walking and generalised weakness in the last 3months.

HISTORY OF PRESENT ILLNESS:

The Patient was said to be apparently normal 10 years ago; later, he was diagnosed with Prostate Adenocarcinoma, which was treated with surgery(orchiectomy) followed by six cycles of Chemotherapy. Later on, he was asymptomatic for about 10 long years, and for the past three months, he has complained of excessive urination

and occasional passing of clots in the urine for 3 months. The patient also complains of pain in the lower abdomen, lower back region, right scapular region, and difficulty in walking, along with generalised weakness for the past 3 months, and hence once again investigated, was found to be recurrence of the disease and with bone metastasis. The patient started with radiotherapy since then, as per the oncology consultation, but as the symptoms are not getting relieved, he approached JSS Ayurveda Medical Hospital for further management.

HISTORY OF PAST ILLNESS:
K/C/O Prostate Adenocarcinoma with Bone Metastasis.
N/K/C/O Diabetes mellitus, Hypertension and other systemic disorders.

PERSONAL HISTORY:
Appetite - Reduced.
Dietary habit - Non-Vegetarian.
Micturition - 8 to 10 times during day, 3-4 times @ night, with blood clots occasionally
Bowel - Once a day (Often Constipated).
Sleep - Disturbed Sleep due to lower back pain.
Addiction - Daily intake of Junk Food (Biscuits and other bakery items).

SURGICAL HISTORY:
ORCHIECTOMY-21/04/2010

FAMILY HISTORY:
All Family members are said to be healthy.

MEDICAL HISTORY:
Patient was taking Analgesics Occasionally (only on pain)

GENERAL EXAMINATION:
BP - 110/80 mm of Hg.
Pulse - 78/min.
Temperature - Afebrile.
R/R - 18/min.
Pallor - Absent.
Icterus - Absent.
Cyanosis - Absent.
Clubbing - Absent.
Koilonychia - Absent.
Oedema- Absent.

ASHTASTANA PARIKSHA

Table No.1

NADI	78BPM
MALA	Once a day (Often constipated)
MOOTRA	8 to 10 times per day 3-4 times @ night, with blood clots occasionally
JIHWA	*Alipta*
SHABDHA	*Prakruta*
SPARSHA	*Prakruta*
DRIK	*Prakruta*
AKRITI	*Prakruta*

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DASHAVIDHA PARIKSHA

Table No.2

PRAKRITI	*Vata pitta*
VIKRITI	*Kapha vata*
SARA	*Mamsasara*
SAMHANANA	*Madhyama*
PRAMANA	*Madhyama*
SATMYA	*Madhyama*
SATVA	*Madhyama*
AHARA SHAKTI	*Prakruta*
VYAYAMA SHAKTI	*Prakruta*
VAYA	75 years

SYSTEMIC EXAMINATION:
RESPIRATORY SYSTEM:
NVBS Heard, No added Sound.

CARDIO VASCULAR SYSTEM:
S1 S2 Heard, No Murmurs.

GASTRO INTESTINAL TRACT:
Soft and non-tender, No organomegaly.

MUSCULOSKELETAL SYSTEM:
GAIT - Limping.

ARMS - Appearance – Right – Normal**, Left –** Normal
Movements
Right - All ROM are painful and restricted @ Rt Scapular region.
Left - All ROM are possible without pain.

LEGS
Appearance - Normal.
Movements.
Right - Painful and restricted.
Left - Possible and restricted**.**
SPINE - TENDERNESS - Grade 2 @ L4, L5, S1, no deformity noted

On Examination Of Lumbar Spine
On Inspection - No Scar mark, redness
On Palpation - Tenderness Grade 2 Present @ L1, L2, L4, L5, S1

RANGE OF MOVEMENT
Flexion - Painful and restricted.
Extension - Painful and restricted
Right Lateral Flexion - Painful and restricted.
Left Lateral Flexion - Painful and restricted.
Right Rotation - Painful and restricted.
Left Rotation - Painful and restricted.

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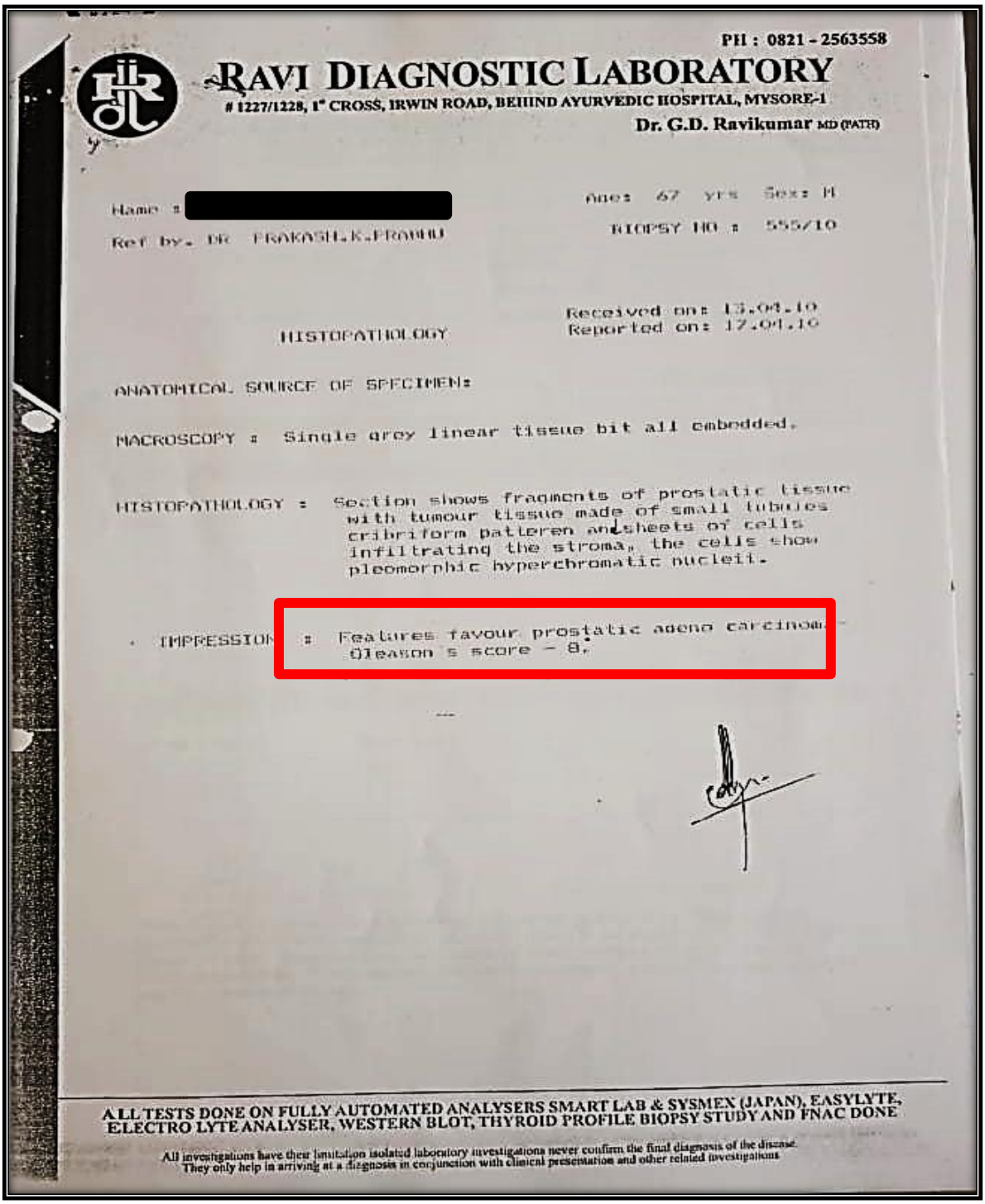
NERVOUS SYSTEM EXAMINATION:
Patient was conscious & well oriented to time, place & person.
Higher mental functions were intact.

1.INVESTIGATION REPORTS - Dated - 17/04/2010



PH : 0821 - 2563558

RAVI DIAGNOSTIC LABORATORY

1227/1228, 1st CROSS, IRWIN ROAD, BEHIND AYURVEDIC HOSPITAL, MYSORE-1

Dr. G.D. Ravikumar MD (PATH)

Name : [redacted] Age: 67 yrs Sex: M

Ref by: DR PRAKASH.K.PRABHU BIOPSY NO : 555/10

Received on: 13.04.10
Reported on: 17.04.10

HISTOPATHOLOGY

ANATOMICAL SOURCE OF SPECIMEN:

MACROSCOPY : Single grey linear tissue bit all embedded.

HISTOPATHOLOGY : Section shows fragments of prostatic tissue with tumour tissue made of small tubules cribriform patteren and sheets of cells infiltrating the stroma. the cells show pleomorphic hyperchromatic nucleii.

IMPRESSION : Features favour prostatic adeno carcinoma Gleason s score - 8.

ALL TESTS DONE ON FULLY AUTOMATED ANALYSERS SMART LAB & SYSMEX (JAPAN), EASYLYTE, ELECTRO LYTE ANALYSER, WESTERN BLOT, THYROID PROFILE BIOPSY STUDY AND FNAC DONE

All investigations have their limitation isolated laboratory investigations never confirm the final diagnosis of the disease. They only help in arriving at a diagnosis in conjunction with clinical presentation and other related investigations

IMPRESSION

Features favour Prostatic Adenocarcinoma

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2.INVESTIGATION REPORTS
MRI LUMBAR SPINE - Dated - 6/01/2020

ISO 9001 : 2015
GOPALA GOWDA SHANTHAVERI MEMORIAL HOSPITAL
NAZARBAD MEDICAL SERVICES PVT. LTD.,
T. Narasipura Road, Nazarbad, MYSURU - 570 010
Tel. : 0821-4001600, Fax : 0821-2441148

G.G.S.M.
ಗೋಪಾಲಗೌಡ ಶಾಂತವೇರಿ ಸ್ಮಾರಕ ಆಸ್ಪತ್ರೆ
ನಝರ್‌ಬಾದ್ ಮೆಡಿಕಲ್ ಸರ್ವಿಸಸ್ ಪ್ರೈ ಲಿ.
ಟಿ.ನರಸೀಪುರ ರಸ್ತೆ, ನಝರ್‌ಬಾದ್, ಮೈಸೂರು - 570 010

[redacted]	Date : 06.01.2020	Ref : Dr. Shushrutha H V
Age / Sex : 76Y / M	OP/IP : 119125	
MRI OF LUMBAR SPINE with screening of cervical and thoracic spine		

Clinical details: Known case of carcinoma prostate. Post radiotherapy. Currently complaints of low back ache.

Protocol:
Imaging was performed using 1.5 Tesla magnet using the spine array coil. Sequences include Sagittal T1, T2 and STIR -weighted turbo spin echo images through the lumbar and sacral spine and axial T1 and T2 -weighted spin echo images through lumbar disc levels.

Findings:

Lumbar lordosis and alignment are maintained.
Areas of altered signal intensity appearing hypointense on STIR are seen involving spinous process of T12, L1, L3 and L4 vertebrae.
Rest of the vertebral bodies and their neural arches show normal marrow signal intensity. No mass lesions or compression fractures.
ALL, PLL, Ligamentum flavum, interspinous and supraspinous ligaments are intact.
Conus medullaris lies at the L1/L2 level. Visualized portions of spinal cord, conus medullaris and filum terminale are normal in size and signal intensity. No mass lesion.
Pre and paravertebral soft tissues are normal.

Intervertebral discs: Disc desiccation is seen at multiple levels.

L1/L2	- There is no posterior disc contour abnormality, central canal or neural foramina narrowing. Ligamentum flavum is normal, Both Facet joints are normal.
L2/L3	- There is no posterior disc contour abnormality, central canal or neural foramina narrowing. Ligamentum flavum is normal, Both Facet joints are normal.
L3/L4	- There is no posterior disc contour abnormality, central canal or neural foramina narrowing. Ligamentum flavum is normal, Both Facet joints are normal.
L4/L5	- Small posterior disc protrusion is seen. No spinal canal/ neural foramen narrowing. Ligamentum flavum is normal, Both Facet joints are normal.
L5/S1	- Small posterior disc protrusion is seen. No spinal canal/ neural foramen narrowing. Ligamentum flavum is normal, Both Facet joints are normal.

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MRI LUMBAR SPINE - Dated - 6/01/2020

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NAZARBAD MEDICAL SERVICES PVT LTD.,
T. Narasipura Road, Nazarbad, MYSURU - 570 010
Tel. : 0821-4001600, Fax : 0821-2441145

G.G.S.M.
GROUP OF HOSPITALS
ಗೋಪಾಲಗೌಡ ಶಾಂತವೇರಿ ಸ್ಮಾರಕ ಆಸ್ಪತ್ರೆ
ನಜರ್‌ಬಾದ್ ಮೆಡಿಕಲ್ ಸರ್ವಿಸಸ್ ಪ್ರೈ ಲಿ.,
ಟಿ ನರಸೀಪುರ ರಸ್ತೆ, ನಜರ್‌ಬಾದ್, ಮೈಸೂರು - 570 010

Screening of cervical spine with Sagittal T2W:

- Alignment is maintained.
- Disc desiccation is seen at multiple levels.
- Anterior marginal osteophytes and posterior disc osteophyte complexes are seen at multiple levels. No spinal canal narrowing.
- Rest of the vertebra and IV disc spaces are normal.
- Cervical spinal cord shows normal signal intensity.

Screening of dorsal spine with Sagittal T2W:

- Areas of altered signal intensity appearing heterogeneous hyperintense on T2/STIR, hypointense on T1 are seen involving T6, T7, T8 vertebrae and their adjacent right sided ribs with associated mild soft tissue component. On post contrast scan, heterogeneous contrast enhancement is seen.
- Disc desiccation is seen at multiple levels.
- Rest of the vertebra and IV disc spaces are normal.
- Visualized spinal cord shows normal signal intensity.

- Note is made of areas of altered signal intensity appearing heterogeneous hyperintense on T2/STIR, hypointense on T1 involving the sacrum and bilateral iliac bones with associated soft tissue component. On post contrast scan, heterogeneous contrast enhancement is seen.

- Note is made of irregular thickening of urinary bladder wall.

IMPRESSSION:

- In a known case of carcinoma prostate imaging features are suggestive of degenerative changes in spine with bony metastasis involving sacrum, bilateral iliac bones, T6, T7, T8 vertebrae and their adjacent right sided ribs. Suspicious involvement of spinous process of T12, L1, L3 and L4 vertebrae.

Suggested bone scan.

K.P.M
Dr. Manohar Kumar K R, DNB
Consultant Radiologist

IMPRESSION

In a known case of carcinoma prostate imaging features are suggestive of degenerative changes in spine with bony metastasis involving sacrum, bilateral iliac bones, T6, T7, T8 vertebrae and their adjacent right sided ribs. Suspicious involvement of spinous process of T12, L1, L3 and L4 vertebrae.

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ASSESSMENT CRITERIA:

Assessment was done by using Karnofsky Performance Scale Index. [5]

Assessment was done before treatment and after completion of treatment by assessing Prostate Specific Antigen Test.

Assessment of pain was done by VAS Scale. [6]

INTERVENTION:

Course - 3Months 12 days

(10/02/2020 TO 13/2/2020)

Mrudu virechana with *Gandharvahastadi Taila* (30ml) +*Gomutra* (10ml) for 3 days.

(14/02/2020 to 26/5/2020)

Tablet *Shiva Gutika* (1-1-1) After food.

Brihatyadi Kashaya (15ml-0-15ml) with 30ml Warm Water After food.

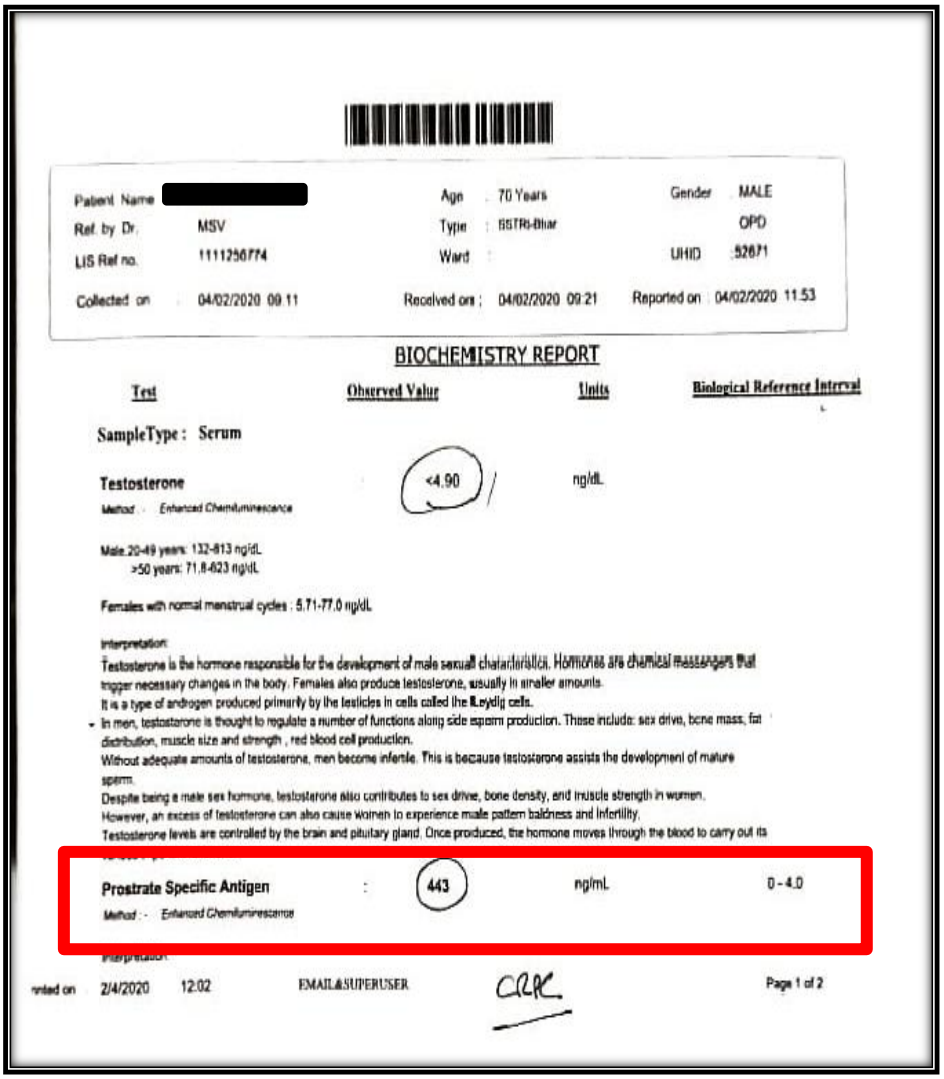
Dadima Rasa (100ml-0-0) Before food.

Tablet *Gokshuradi Guggulu* (1-1-1) After food.

OBSERVATIONS AND RESULTS

OBSERVATIONS:

BEFORE TREATMENT



Patient Name [redacted] Age 70 Years Gender MALE
Ref. by Dr. MSV Type ISSTR-Blue OPD
LIS Ref no. 1111256774 Ward UHID 52671
Collected on 04/02/2020 09:11 Received on 04/02/2020 09:21 Reported on 04/02/2020 11:53

BIOCHEMISTRY REPORT

Test	Observed Value	Units	Biological Reference Interval
SampleType : Serum			
Testosterone	<4.90	ng/dL	
Method : Enhanced Chemiluminescence			

Male 20-49 years: 132-813 ng/dL
>50 years: 71.8-623 ng/dL

Females with normal menstrual cycles : 5.71-77.0 ng/dL

Interpretation:
Testosterone is the hormone responsible for the development of male sexual characteristics. Hormones are chemical messengers that trigger necessary changes in the body. Females also produce testosterone, usually in smaller amounts.
It is a type of androgen produced primarily by the testicles in cells called the Leydig cells.
In men, testosterone is thought to regulate a number of functions along side sperm production. These include: sex drive, bone mass, fat distribution, muscle size and strength , red blood cell production.
Without adequate amounts of testosterone, men become infertile. This is because testosterone assists the development of mature sperm.
Despite being a male sex hormone, testosterone also contributes to sex drive, bone density, and muscle strength in women.
However, an excess of testosterone can also cause women to experience male pattern baldness and infertility.
Testosterone levels are controlled by the brain and pituitary gland. Once produced, the hormone moves through the blood to carry out its

Prostrate Specific Antigen :	443	ng/mL	0 - 4.0
Method : - Enhanced Chemiluminescence			

Interpretation

nted on 2/4/2020 12:02 EMAIL&SUPERUSER CRR Page 1 of 2

ON- 4/2/2020

PROSTATE SPECIFIC ANTINGEN

443ng/ml

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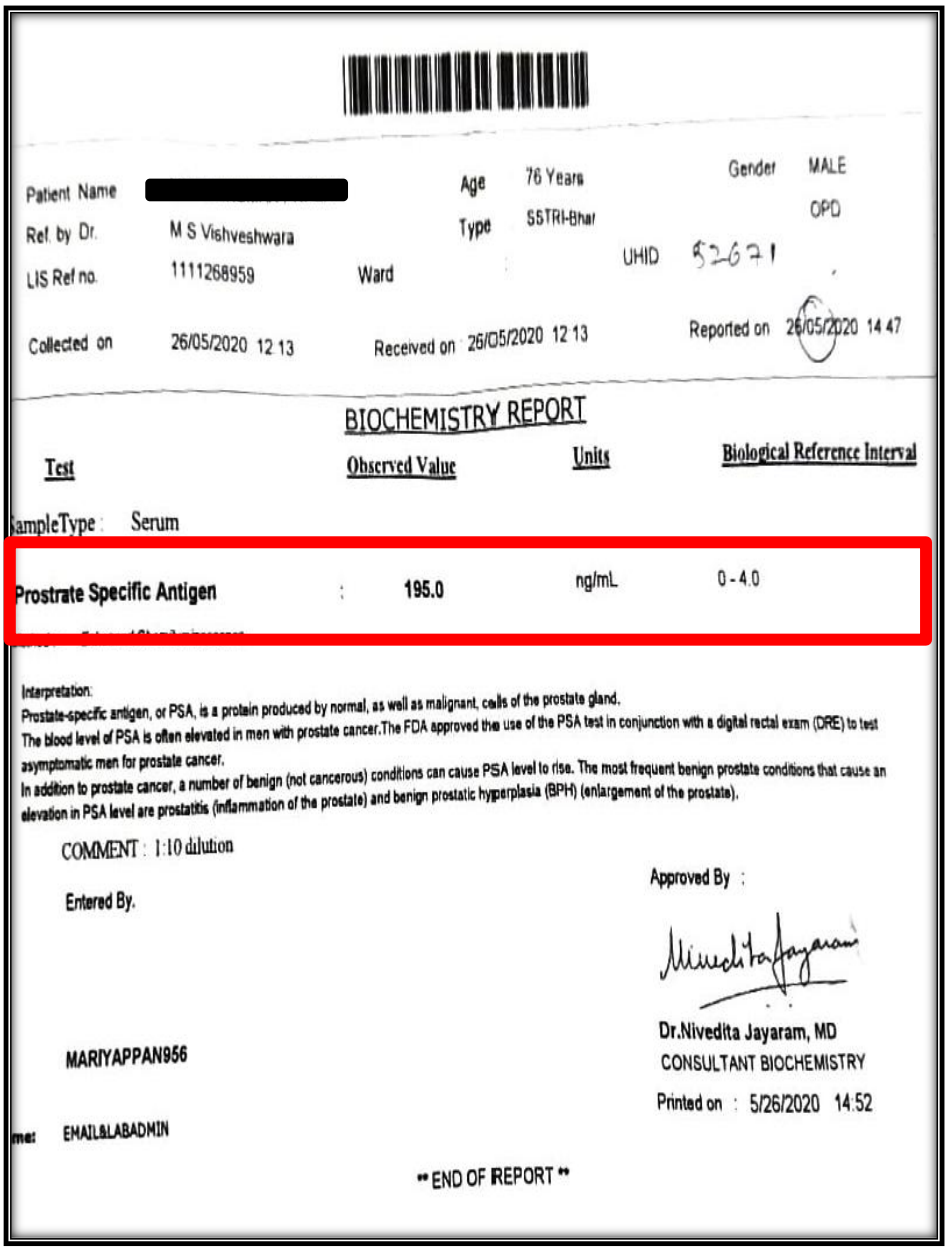
AFTER TREATMENT



Patient Name [redacted] Age 76 Years Gender MALE
Ref. by Dr. M S Vishveshwara Type SSTRI-Bhar OPD
LIS Ref no. 1111268959 Ward UHID 52671
Collected on 26/05/2020 12:13 Received on 26/05/2020 12:13 Reported on 26/05/2020 14:47

BIOCHEMISTRY REPORT

Test	Observed Value	Units	Biological Reference Interval
SampleType : Serum			
Prostrate Specific Antigen	: 195.0	ng/mL	0 - 4.0

Interpretation:
Prostate-specific antigen, or PSA, is a protein produced by normal, as well as malignant, cells of the prostate gland.
The blood level of PSA is often elevated in men with prostate cancer.The FDA approved the use of the PSA test in conjunction with a digital rectal exam (DRE) to test asymptomatic men for prostate cancer.
In addition to prostate cancer, a number of benign (not cancerous) conditions can cause PSA level to rise. The most frequent benign prostate conditions that cause an elevation in PSA level are prostatitis (inflammation of the prostate) and benign prostatic hyperplasia (BPH) (enlargement of the prostate).

COMMENT : 1:10 dilution

Entered By.

MARIYAPPAN956

EMAIL&LABADMIN

Approved By :

Dr.Nivedita Jayaram, MD
CONSULTANT BIOCHEMISTRY
Printed on : 5/26/2020 14:52

** END OF REPORT **

ON-26/5/2020

PROSTATE SPECIFIC ANTINGEN

195ng/ml

Table No.3

SL NO:	ITEMS	BEFORE TREATMENT 4/2/2020	AFTER TREATMENT 26/5/2020
1	KARNOFSKY PERFORMANCE SCALE INDEX [5]	40	90
2	PAIN (VAS) [6]	8	2

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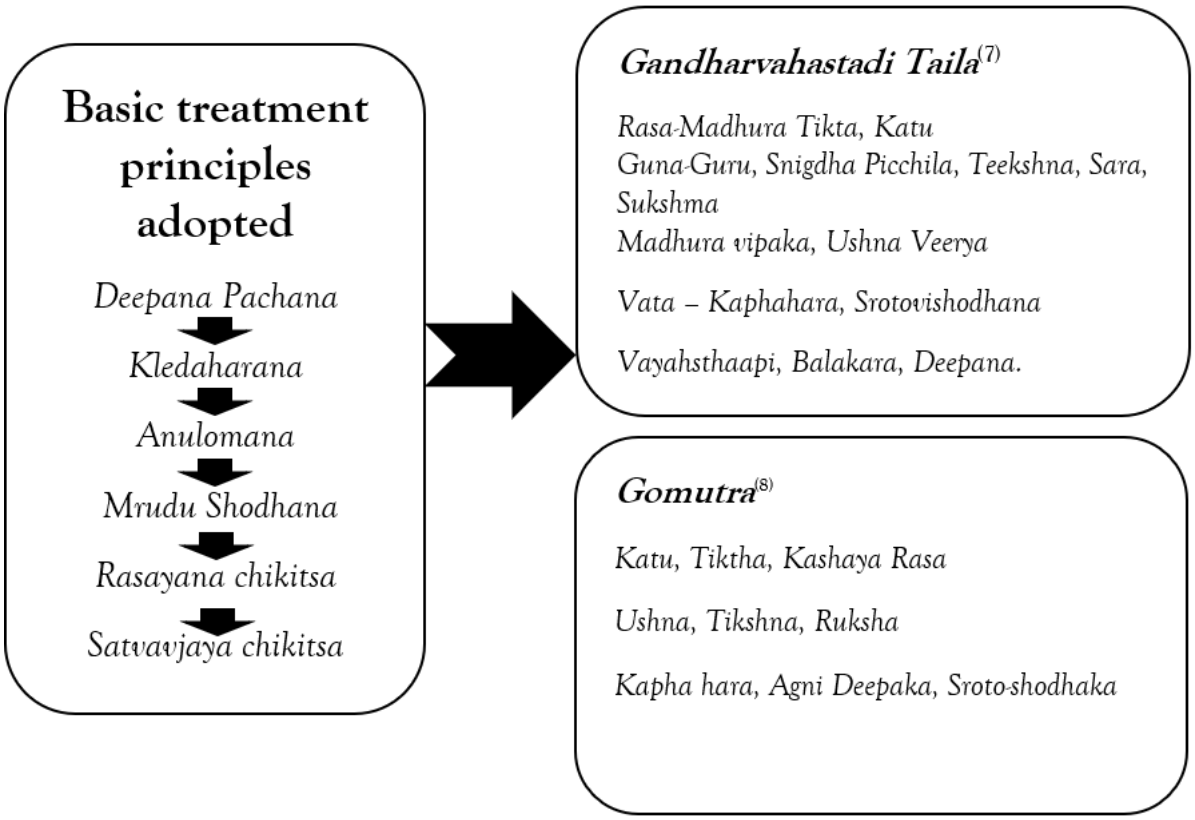
RESULTS

After 3months 12days of treatment, there was an 80% reduction in complaints like excessive urination, occasional passing of clots in the urine, pain in lower back region, right scapular region and difficulty in walking and generalised weakness. Clinical assessments were made from the Prostate Specific Antigen Test, Karnofsky Performance Scale Index & (VAS) Pain assessment scale. Before treatment, Prostate Specific Antigen Test was **443ng/ml** and after treatment it reduced to **195ng/ml.** Karnofsky Performance Scale Index score was **40** before treatment and it was improved to **90** after treatment. The Score of (VAS) Pain assessment scale was **8** before treatment and after the treatment it was reduced to **2**. The results were seen in a span of 3 months and 12 days.

DISCUSSION:

Based on the history and signs and symptoms, it may be considered as ***ARBUDA.***



Gandharvahastadi Taila[7]

The administration of *Gandharvahastadi taila* along with *Gomutra* helps in *Vatanulomana* which is very much essential in all the cancerous conditions as *Dooshita Vata* which in turn leads to the excessive proliferation of tissues. Both *Gandharvahastadi taila* and *Gomutra* acts as *Agni Deepaka* and Srotoshodhaka.[7] *Gandharvahastadi taila* mainly contains Ricin oleic acid, Linoleic acid, Tocopherols, Palmitic Acid and Beta Sitosterol- as Phytoconstituent. [9]

Table No.4-Phytoconstituents of *Gandharvahastadi Taila*[9]

Phytoconstituent	Action
Ricin oleic Acid	• It is Anti Cancerous in Nature.
Linoleic acid	• Inhibition of Cell Growth and induces Cell Death.
Palmitic Acid	• Cell Apoptosis.
Tocopherols	• Anti-Oxidant and Anti Proliferation Action of Prostate Carcinoma Cells.
Beta Sitosterol	• Enhances Apoptosis, Induces Cell Cycle arrest and Regulates Oxidative Stress.

Gomutra[10]
Mainly contains Terpenoids which helps in suppressing early-stage Tumorigenesis via Cell Cycle Arrest. It acts as Anti Carcinogenic Agent and Anti Mutagenic Agent due to the presence of Anti Oxidative Property and Allantoin present in it.

Shivagutika[11]
It is directly indicated in *Arbuda*. It acts as *Karshana-Rasayana* when given with *Sheetala Jala* as *Anupana*. It is Anti-Oxidant, Anti Inflammatory, Analgesic, Anti-Microbial, Anti-Viral, Immunomodulatory Effect. It contains *Shilajatu*, *Hareetaki*, *Amalaki*, *Guduchi*, *Patoladi dravyas* as ingredients.

Shilajatu -Mainly contains Humic Acid and Fulvic acid as a Phytoconstituent and acts as Anti-Oxidant, Anti Inflammatory, Antineoplastic, Anti Mutagenic Agent and Anti Proliferative Effect by inducing Apoptosis.

Amalaki - Mainly contain Gallic Acid, Chebulagic Acid, Ellagic Acid and acts as Anti-Oxidant, Anti Proliferative Action.

Patola - mainly contain Palmitic Acid, Oleic Acid, which acts as Anti Neoplastic and helps in Cell Apoptosis
Guduchi - mainly contains an Alkaloid called Berberine which is Anti Neoplastic in nature. [12]

Bruhatyadi Kashaya [13] contains mainly Bruhati, *Kantakari*, *Prushnaparni*, *Shalaparni*, *Gokshura* acts as *mutrala* and can be given all mutra *vikaras*.

(Tabel No.5 - Explaining phytoconstituents and its action present in *Bruhatyadi Kashaya*)

Phytoconstituent	Action
Saponins [14]	• Induction of cell cycle arrest, Promotion of Apoptosis, • Induction of tumour cell differentiation.
Flavonoids [15]	• Decreases Cell viability of cancer cells through induction of cell cycle arrest and activation of Apoptosis.
Sesquiterpenoids [16]	• Inhibit androgen receptor expression and function in human prostate cancer cells.
Coumarins [17]	• It inhibits the growth, proliferation and metastasis of various tumour cells through carbonic anhydrase, PI3K/AKT/mTOR signalling pathway, microtubule polymerization, angiogenesis and also helps in inhibiting tumour multidrug resistance.
Terpenoids [18]	• It exhibits anticancer effect by triggering various stages of cancer progression, for example, suppressing the early stage of tumorigenesis via induction of cell cycle arrest, inhibiting cancer cell differentiation and activating apoptosis. • At the late stage of cancer development, terpenoids are able to inhibit angiogenesis and metastasis via modulation of different intracellular signalling pathways.
Pterocarpans [19]	• It induces tumour cell death through persistent mitotic arrest during prometaphase of the Prostate cancer.
Tannic Acid [20]	• It acts in turning off oncogenic signalling pathways such as VEGF, TGF-Beta-1 with oncogenic mediators such as MMP'S and also acts as cell cycle regulator.

Dadima rasa [21]
It acts as *Deepana*, *Ruchya* and *Grahi*. It does *Kapha Vata Shamaka*. [21]

(Tabel No.6 -Explaining phytoconstituents and its action present in *Dadima*)

Phytoconstituent	Action
Anthocyanin and Anthocyanidins. [22]	• It helps to prevent proliferation of the cancer cells, inhibiting the ability of cancer cells to divide uncontrollably, the induction of apoptosis, the process of angiogenesis.

Gallic Acid [23]	• It decreases cell viability of PCa and inhibits the tumour formation. • It increases the number of apoptotic cells.
Terpenoids [18]	• It exhibits anticancer effect by triggering various stages of cancer progression, for example, suppressing the early stage of tumorigenesis via induction of cell cycle arrest, inhibiting cancer cell differentiation and activating apoptosis. • At the late stage of cancer development, terpenoids are able to inhibit angiogenesis and metastasis via modulation of different intracellular signalling pathways.
Flavonoids [24]	• Decreases Cell viability of cancer cells through induction of cell cycle arrest and activation of Apoptosis.
Ellagitannin [25]	• It inhibits tumour cell proliferation by interfering with NF-kB activity. • Promotes tumour cell apoptosis. Inhibits tumour cell metastasis.

Gokshuradi Guggulu [26]

It contains mainly *Gokshura*, *Guggulu*, *Triphala*, *Trikatu* and *Musta*. It acts as *Tridosha shamaka*, *Mutrala*, *Anulomaka*, *Shothahara Deepaka*, *Pachaka* and *Grahi*. [26]

(Tabel No.7 -Explaining phytoconstituent and its action present in *GokshuradiGuggulu*)

Phytoconstituent	Action
Terrestrosin D[27]	• It inhibits prostate cancer cell growth by inducing apoptosis and prevent angiogenesis essential for tumour survival. • It shows selective toxicity to cancer cells, protecting healthy cells.
Protodioscin [28]	• It induces apoptosis, slows cell proliferation, and modulates cellular signalling pathways involved in prostate tumour progression.
Dioscin[29]	• Inhibits PI3K/Akt key survival pathways in prostate cancer cells, leading to reduced tumour growth and increased cancer cell death. • It also exhibits anti-inflammatory and antioxidant effects which contribute to cancer inhibition.
Z-guggulsterone & E-guggulsterone [30]	• Induce apoptosis in PC-3, LNCaP, and DU145 prostate cancer lines. • Inhibiting angiogenesis of prostate cancer cells through suppression of the VEGF–VEGF-R2–Akt signalling axis • Suppressing migration and metastasis of prostate cancer cells.
Cyperene & Cyperotundone[31]	• Interfere with cell signalling pathways, inducing apoptosis via upregulation of pro-apoptotic proteins and downregulation of survival pathways such as NF-κB and Akt.
Nootkatone & α-cyperone[31]	• Exhibit anti-proliferative effects, causing cell cycle arrest and suppressing migration and invasion of prostate cancer cells.
Piperine [32]	• It triggers apoptosis, specifically in prostate cancer cells by activating caspase pathways and increasing ROS levels. • It suppresses molecular pathways involved in cancer cell survival, such as NF-κB, Akt, and PI3K signalling, which are known to be overactive in prostate cancer.

Satvavajaya Chikitsa

Satvavajaya Chikitsa is a unique, non-pharmacological psychotherapeutic approach in Ayurveda, categorized as *Adravyabhoota Chikitsa* that acts primarily through mind control and psychological intervention. It aims to strengthen the *Satva* (mental faculty), which in Ayurveda represents mind, intellect, and mental clarity. At the physiological level, *Satvavajaya Chikitsa* works by modulating the *Trigunas, Rajas*, *Tamas*, and *Satva*. The therapy reduces the influence of *Rajas* and *Tamas* and enhances *Satva*, promoting mental harmony. [33] This is achieved through techniques such as *Pratyahara* (withdrawal of the senses), *Dharana* (concentration), and

Dhyana(meditation), which prevent dispersed thoughts and hyperactivity of the mind. This psychological control improves mental intensity and focus. [34]

***Satvavajaya Chikitsa* and Its Therapeutic Action on the Brain in Prostatic Adenocarcinoma -** Prostatic Adenocarcinoma patients often experience psychological stress, anxiety, depression, and cognitive disturbances related to the disease and its treatment. Stress affects brain function, leading to impaired cognition, sleep disturbances, and heightened emotional responses.

Satvavajaya Chikitsa, through calming the mind and reducing stress response, helps regulate neurotransmitters and neurohormonal balance indirectly, promoting mental well-being. [35] *Satvavajaya Chikitsa* induces specific neurochemical changes in cancer patients by modulating various brain chemicals and stress-related pathways, improving mental health and resilience during disease and treatment. The key neurochemical effects include:

Tabel No.8

Reduction of cortisol [35][36]	• *Satvavajaya Chikitsa* decreases the overactivation of the hypothalamic-pituitary-adrenal (HPA) axis, thus lowering cortisol levels that are elevated due to cancer-related chronic stress. • This helps alleviate neurotoxicity caused by high cortisol.
Increase in serotonin levels [37][38]	• Relaxation and mental balance techniques promote serotonin secretion, which improves mood, reduces depression, and alleviates anxiety in cancer patients.
Dopamine modulation [37][38]	• Mental regulation and cognitive therapies involved in *Satvavajaya Chikitsa* optimize dopamine pathways, thereby enhancing motivation, pleasure, and cognitive function while reducing fatigue and cognitive impairments seen in cancer.
Enhancement of GABA activity [37][38]	• The meditative and calming aspects increase gamma-aminobutyric acid (GABA) levels, reducing neural excitability and anxiety, and improving sleep quality.
Influence on Immune-Neuroendocrine Axis [35]	• It supports immune-brain axis modulation, potentially improving systemic health impacted by the tumour and hormonal therapies.

Thus, *Satvavajaya Chikitsa* acts by optimizing brain neurochemical pathways disrupted by cancer-related stress, helping restore mental health and support overall healing.

CONCLUSION:

Prostatic Adenocarcinoma remains a relapsing malignancy, and aside from temporary symptomatic interventions such as radiotherapy, chemotherapy, and surgery, no curative treatment is currently available in contemporary medical practice. In the present case, management with classical Ayurvedic treatment resulted in marked symptomatic relief and improved quality of life within 3 months 12days. With continued medication and regular follow-up, the patient survived asymptomatically with good quality of life for 3 years, which is notably better than the typically expected survival of 3–6 months under current modern medical standards. Although this single case provides encouraging evidence supporting the potential role of Ayurveda in the management of Prostatic Adenocarcinoma, further validation through well-designed randomized controlled trials with larger cohorts is recommended.

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