

Case Study

Effect of Yoga in the Management of Medullary Thyroid Cancer: A Case Study

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ABSTRACT

The present study is mainly oriented to examine the effect of yogic practices on the post surgical management of Medullary Thyroid Cancer. The case study is of the patient of 78 years old who underwent surgery for Medullary Thyroid Cancer. The patient was supposed to go for periodic medical examination as recommended by the consultants to test possibility of reoccurrence. The patient practiced yogic practices particularly some specific as an as and (Pranayam) along with dietary and pharmaceutical management. During periodic checkup, since surgical operation, most of the reports came up to be absolutely normal. The patient and the consultants reported it to be unpredictable positive outcome. The present paper thus, testifies the effect of yoga on post-surgical management.

Keywords: *Yoga, Management, Coping, Medullary Thyroid Cancer*

Medullary thyroid cancer (MTC) is a form of thyroid carcinoma which originates from the parafollicular cells (C cells), which produce the hormone calcitonin. Medullary tumors are the third most common of all thyroid cancers, Hu et. al.(2008). They make up about 3% of all thyroid cancer cases. Approximately 25% of Medullary thyroid cancer is genetic in nature, caused by a mutation in the RET proto-oncogene. This form is classified as familial MTC. When MTC occurs by itself it is termed sporadic MTC. When it coexists with tumors of the parathyroid gland and medullary component of the adrenal glands (pheochromocytoma) it is called multiple endocrine neoplasia type 2 (MEN2).

It was first characterized in 1959. The major clinical symptom of metastatic medullary thyroid carcinoma is diarrhea; occasionally a patient will have flushing episodes. Both occur particularly with liver metastasis, and either symptom may be the first manifestation of the disease. The flushing that occurs in medullary thyroid carcinoma is indistinguishable from that associated with carcinoid syndrome. In MTC, the flushing, diarrhea, and itching (pruritis) are all caused by elevated levels of calcitonin gene products (calcitonin or calcitonin gene-related peptide). Alternatively, the flushing and diarrhea observed in carcinoid syndrome is

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Effect of Yoga in the Management of Medullary Thyroid Cancer: A Case Study

caused by elevated levels of circulating serotonin. Medullary thyroid carcinoma may also produce a thyroid nodule and enlarged cervical lymph nodes. Goldman et.al.(2011) in his research mentioned that sites of spread of medullary thyroid carcinoma include local lymph nodes in the neck, lymph nodes in the central portion of the chest (mediastinum), liver, lung, and bone. Spread to other sites such as skin or brain occurs but is uncommon.

The word Yoga is derived from the Sanskrit word 'yuj' which means unification of individual consciousness with the universal consciousness. In other words we can say that Yoga is a discipline where there is unification of physical, mental and spiritual elements within an individual. The origins of yoga schools and practices speculated to date back in pre-vedic Indian, probably as early as 3000 B.C. as per the archeological evidence; Raj (1994) although the chronology of text describing yoga is unclear. It is mentioned in the oldest hymn of India 'Rigveda' followed by emphasis in 'Yajurveda' to practice yoga to achieve mental, physical and spiritual enhancement. The word yoga and pranayama are also mentioned in the holy book 'Mahabharata' and in 'Bhagwat Geeta' to practice yoga for the enhancement of physical and mental health. Yoga was systemized by Patanjali in the Yoga Sutras (300–200 B.C.). Patanjali defined the purpose of yoga as knowledge of the true "Self" (God) The yog sutras of Patanjali were compiled around by 400 CE by sage Patanjali who collected texts from older traditions and contributed into Patanjalyogasastra. Wujastyk (2011) also described two major types of yoga's named as Hath yoga and Raja yoga . Among the many kinds of yoga asanas, Pranayama is the most vital yoga (Kimberly;2000). It is an extension and control of one's breath. Practicing proper techniques of breathing helps in bringing good amount of oxygen to the blood and brain, eventually helping control prana or the vital life energy. Pranayama also goes hand in hand with various yoga asanas. The union of these two yogic principles is considered as the highest form of purification and self-discipline, covering both mind and body. Pranayama techniques are also practiced in different kinds of meditation to achieve complete unification of physical, mental and spiritual elements within an individual. Review of literature revealed effectiveness of yoga particularly 'pranayam' practiced as a therapy to cure cancer, asthma, schizophrenia and heart disease. Though, the results can be inconclusive in some cases. Smith et.al (2009); Sharma et.al. (2012).

CASE STUDY

The Client is a 78 year old male retired from govt. job who reported the symptoms of cough and difficulty in swallowing at the age of 70. The Client was leading a healthy life style with no episodes of smoking and consuming alcohol with regular normal exercises.

Medication: No medication pre-surgery.

Health Issues: No major health issues.

Dietary Habits: Vegetarian, Non- Smoker and Non- Alcoholic.

Laboratory Findings/Diagnosis: The symptoms when examined found to be of Thyroid cancer, particularly Medullary Carcinoma Thyroid with B/L Cervical Nodal. The most common signs and symptoms of thyroid cancer include a lump, or thyroid nodule, that can be felt in the neck, trouble swallowing, throat or pain, swollen in the neck, cough, and vocal changes. There are four major types of thyroid cancer: Papillary, Follicular, Medullary, and

Effect of Yoga in the Management of Medullary Thyroid Cancer: A Case Study

Anaplastic. Among which, the concerned patient is diagnosed with *Medullary Carcinoma*.

Medical History: The patient reported loose motions frequently before the diagnosis of medullary thyroid carcinoma, trouble in swallowing at times and cough, sinus but with no signs of blood sugar

Family History: His mother was asthmatic patient and died at the age of 70 from blood sugar. His brother was also a patient of asthma and died with blood sugar at the age of 72 approximately.

Treatment Plan: The Client was advised for a surgical operation of nodules on the thyroid gland. As per the advice of surgeons, the patient underwent surgery which lasted for more than 6 hours. The surgical operation resulted into not only the removal of lymph nodes around the thyroid but removal of the thyroid gland as the gland was surrounded by malignant cancer cells.

Post Operative Treatment

The patient was advised for further periodic medical/checkups and chemotherapy when and if required at later stages. The patient was advised the medicine (Thyronorm) to regulate the thyroid hormone level in the body. Despite of Doctor's advise the patient took the support of Yogic exercises like Pranayam (*Bhastrika, kapalbhati, Vahiye Pranayam, Agnisar, Ujjai pranayam, Anulom Vilom, Brahmri and Uccharan of OM*). The patient continued the Yoga for two hours in the morning and two hours in the evening and has made yogic exercises as part of his daily routine with no strict precautions about diet. The patient is vegetarian in his diet since childhood.

RESULTS AND DISCUSSION

After 6.5 months, the Client undergone to check the status of the then prevailing Cancer. The following tests were advised post-operation.

Name of the test	Value	Result/Range	Date
Serum Calcium	9.0 ml	Normal (8.8- 10.2)	05/09/2010
Thyroid Stimulating Hormone	20.21	Not Normal (0.35-5.5)	05/09/2010
Calcitonin Serum	2.00 ml	Normal (< 18.20)	05/09/2010.
TSH	15.40 ml	Reduced (< 0.35-5.5)	16/09/2010.

Table 2.Repeated Checkup in 2011.

Name of the test	Value	Result/Range	Date
Serum Calcium	9.0 ml	Normal (8.8-10.2)	05/03/2011
TSH	5.0 ml	Normal (0.35-5.5)	05/03/2011
Calcitonin Serum	2.00 ml	Normal (< 18.20)	05/03/2011

The patient meanwhile remained active in yoga (*Pranayama*) but didn't go for routine checkups. He went for normal routine checkup in May 2016 and 2017. The reports of which are as under:-

Table 3. Repeated Checkup in 2016 and 2017

Name of the test	Value	Result/Range	Date
T3 (total Serum)	1.220 ml	Normal (0.4-1.81)	23-04-2016
T4 (Total) Serum	10.660 dl	Slightly increased (4.6-10.5)	23-04-2016
TSH, Serum	<0.005 ml	0.4 - 4.2	23-4-2016
S. Calcium	9.43 mg/dl	8.8-10.2	19-5-2016
Calcitonin Serum	<2.00	< 8.40 pg/ml	19-5-2016
Ultrasound Neck	15.2x 10.44mm sized mildly enlarged hypoechoic lymph node in right side of visceral space and 8.5 x 4.9 mm sized lymph node. Few small hypoechoic lymph nodes seen in bilateral posterior triangles, measuring up to 3.5mm in short axis.	The patient is further advised for another test (CEA) to verify these lymph nodes.	19-5-2016
CEA (Carcino Embryonic Antigen)	2.84 ng/ml	0-3.4 ng/ml Normal.	31/05/2016
Calcitonin Serum	<2.00	<8.40 pg/ml	10/07/2017

The reports clearly depicted decrease in the level of Calcitonin (Higher concentration of Calcitonin results in to Medullary Thyroid Carcinoma). In 2010, the patient’s serum calcium is 9.0 ml (normal range), while his TSH was found to be very high i.e 20.21 which is very high than the expected normal range. His calcitonin was found to be in normal range and after lapse of 10 days he was again tested with TSH and found with slightly reduced levels of TSH i.e. 15.40 ml that may be because of some changes in the medicine’s dose (Thyronorm). The patient again underwent for routine checkup after a year in 2011 and the results revealed that the patient’s Serum calcium, TSH and Calcitonin all came within normal range and hence no trace of carcinoma is visible in the clinical reports. The patient reported to be involved in yogic exercises like pranayama (*Bhastrika, kapalbhati, Vahiye Pranayam, Agnisar, Ujjai pranayam, Anulom Vilom, Brahmri and Uccharan of OM*) daily post – operation till date. Meanwhile, the patient didn’t underwent routine checkup till 2016 and the reports of 2016 also revealed that patient is found to be absolutely normal in *calcitonin* which indicates no signs of cancer and the ultrasound revealed very small millimeters of nodules which when correlated with another test (CEA- Carcino Embryonic Antigen) found to be absolutely normal.

Review of Literature also reveals that yogic exercises when used as intervention is helpful in reducing the symptoms leading to reduced physical and psychological distress as well as improved physical activity and psychological well-being *DiStasio (2009)* .Yogic exercises if used as therapy for cancer can help clear out toxins accrued during cancer treatment more

Effect of Yoga in the Management of Medullary Thyroid Cancer: A Case Study

effectively. Yoga asana's stimulate not just muscles, but also increases blood flow, balances the glands and enhances the lymphatic flow in the body, all of which enhances the body's internal purification processes. The deep, relaxing breathing often emphasized in *yoga for cancer* therapy also increases the current of oxygen-rich blood to the cells, delivering vital nutrients to tired cells and further clearing out toxins. In addition to removing toxins, yoga for cancer can help dissipate tension and anxiety and enable cancer patients to settle into a greater sense of ease and well-being *Bower et.al.(2005)*. Stress depresses the body's natural immune function, which may be one of the reasons that there is evidence that people who practice yoga for cancer have greater recovery rates as yoga helps in reducing stress rates and thus we can say that yoga may have long term physical and psychological benefits in the patients. Along with medications & yogic exercises, the patient needs good emotional and psychological care by the family members. The results however depend on the age, determination to get healthy frequency of yogic exercises in a day and particular asanas/ styles. *Carson et.al (2007)* reported that breast cancer patients who were more engaged in yogic exercises each day used to experience better relief, no pain, distress and greater relaxation in a day as compared to patients who practice less. There are number of researches which proves that yoga brings synchrony in mind, body and soul and is surely is the need of the hour to practice and inculcate it in our daily life styles to lead a positive, healthy and meaningful life. However, rehabilitation of cancer requires holistic approach which certainly includes medical treatment suggested by the doctor, dietary plan as well as application of Yogic exercises as a therapy which helps in making synchrony between mind-body and soul of an individual. The results of our study shows that use of yogic exercises helps in rehabilitation of patient from the effects of cancer and hence, there is a dire need of oncologists and psychologist to aid patient with medical and psychotherapeutic intervention when required, along with where benefits of yogic exercises could be recommended.

CONCLUSION

In conclusion, yoga intervention shows beneficial findings in managing cancer-related symptoms in medullary thyroid carcinoma. Results from the study and emerging literature on yoga and cancer revealed preliminary support for the feasibility and efficacy of yogic interventions for cancer patients. Further researches are required to determine the reliability of these effects and to identify their underlying mechanisms. The limitation of the study is that it is only subjected on single patient. Thus, there is a dire need of further more direct linkages of yoga and cancer cure to elucidate effects of yoga on cancer treatment and rehabilitation. However, our findings matched with the researches and this it can be concluded that yoga can be beneficial in the treatment, management and prevention of the cancer. However, it is best to practice yoga under the supervision and advice of yoga specialists.

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