

# Case Study: Potential Impact of Medicinal Mushroom Capsules on Merkel Cell Carcinoma Remission

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**Abstract:** *This case study examines the efficacy of medicinal mushroom capsules as an adjunctive treatment for Merkel Cell Carcinoma MCC in a patient undergoing surgical resection. Despite the high risk of recurrence associated with MCC, the patient, who took a blend of medicinal mushrooms, showed no recurrence for over 15 years. The findings suggest a potential role for mushroom supplements in MCC management, warranting further research into alternative treatments for this aggressive skin cancer.*

**Keywords:** Merkel Cell Carcinoma, medicinal mushrooms, alternative therapy, cancer treatment, case study

## 1. Introduction

The purpose of this case study is to explore the potential efficacy of medicinal mushroom capsules as an alternative or adjunctive treatment for Merkel Cell Carcinoma.

This study is significant as it explores an alternative treatment approach for Merkel Cell Carcinoma, a rare and aggressive form of skin cancer with limited treatment options and poor prognosis. The findings may encourage further research into nonconventional therapies.

## 2. Objective

The objective of this case study is to analyze the interaction between mushroom capsules and their efficacy in treating Merkel Cell Carcinoma MCC.

## 3. Methods

This study follows the treatment plan and outcome for a patient diagnosed with Merkel Cell Carcinoma. The patient was given a combination of Lion's Mane mushroom capsules, MyCommunity, and Stamet's 7 mushroom capsules (containing Royal Sun Blazei, Cordyceps, Reishi, Maitake, Lion's Mane, Chaga and Mesima.) from the company Host Defence AKA Fungi Perfecti.

## 4. Results

Once the tumor was removed there was no recurrence. The patient was followed for over 15 years.

## 5. Background

Merkel cell carcinoma (MCC) is a rare but aggressive type of neuroendocrine skin cancer that predominantly affects elderly and immunocompromised individuals. Characterized by its rapid growth and high metastatic potential, MCC often presents as a painless, firm, red or violet nodule on sun-exposed areas of the skin. The primary etiological factors implicated in MCC include ultraviolet (UV) radiation

exposure and Merkel cell polyomavirus (MCPyV) infection. Despite its rarity, the incidence of MCC has been increasing, necessitating further research into its pathogenesis and treatment options.

Spontaneous regression of MCC is extremely rare as well as poorly understood. A 2010 literature review reported 22 cases of spontaneous regression and another case study in 2018 reported a rapid and complete regression. MCC is a rare malignancy with a poor prognosis paired with a high rate of metastasis. Traditional management of MCC involves a combination of surgery, radiation therapy, and chemotherapy. However, the prognosis remains poor, especially in cases where the disease has metastasized. The overall survival rate remains relatively low, underscoring the need for continued investigation into alternative therapeutic approaches and the mechanisms underlying MCC progression and regression.

## 6. Case Report

A 65 - year - old white woman presented to her internist's office in 2006. She had a round raised lesion on the dorsal surface of her right index finger that was approximately 2 centimeters in diameter. A biopsy was done by her local dermatologist that was positive for Merkel cell carcinoma.

Her doctor treated her with Stamet's 7 mushroom capsules 4 daily or 500 mgs in the AM prior to breakfast: these included Royal Sun Blazei, Cordyceps, Reishi, Maitake, Lion's Mane, Chaga and Mesima. She was also prescribed 4 Lion's Mane mushroom capsules or 4 grams to be taken prior to her evening meal. This continued as a daily regimen after therapy was completed. She also underwent one therapy session for visual imaging prior to surgery. She had a healthy lifestyle which she continued to enjoy before and after surgery. Approximately a month after starting the mushrooms, the tumor was removed at the University of Washington. The pathology showed microscopic foci of metastatic Merkel cell carcinoma in two lymph nodes and the primary cutaneous neuroendocrine carcinoma of the skin which was 1 cm in greatest dimension. It was ulcerated and extended in the lateral and deep margins in multiple foci. When looking at the block of neoplastic cells there were only *rare* positive cells.

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After resection the patient continued to take the mushroom blend and Lion's mane. Her tumor did not return. She was followed for over 15 years.

## 7. Discussion

The literature review presented aims to examine the current treatments and their associated efficacies and begins to explore alternative treatment with medicinal mushroom capsules. There is a lack of willingness by many medical professionals to attempt treatment using medicinal mushroom capsules; this literature review will work to alter the perception of the medical community on this issue, and in doing so, encourage the use of medicinal mushroom capsules in the treatment of MCC.

The most successful treatment of Merkel cell carcinoma to date has been radiation and immunotherapy. MCC is an uncommon yet highly aggressive neuroendocrine skin cancer primarily impacting elderly and immunocompromised individuals. Known for its swift progression and significant metastatic capability, MCC typically appears as a painless, firm, red, or violet nodule on sun-exposed areas of the skin. Progression of MCC can intensify and cause decline very quickly. In the Branch, et al. case report from 2018, they discuss the case of a 96-year-old woman whose MCC nodule disappeared in just 8 weeks following a punch biopsy. This is one of 30 cases reported with spontaneous remission. Why this occurs is unclear. It does seem that T-cell-mediated immunity and apoptosis play a major role.

### Why Mushrooms?

Mushrooms have a strong anti-cancer property. *Herichium erinaceus*, a medicinal mushroom, is noted for its significant anticancer potential due to its complex array of active compounds. These compounds can inhibit tumorigenesis at various stages through multiple mechanisms, as demonstrated in both cell culture and xenograft experiments. The extracts and components of *H. erinaceus* have been shown to exhibit several anticancer activities, including:

- 1) Immunostimulatory effects,
- 2) Anti-metastatic properties through inhibition of matrix metalloproteinases,
- 3) Gastro- and intestine-protective activities,
- 4) Antioxidant capabilities,
- 5) Pro-apoptotic effects, and
- 6) Inhibition of angiogenesis.

These diverse anticancer properties are attributed to various compounds such as polysaccharides, lipids, terpenoids (including unique erinacines), and proteins. Two potential strategies for utilizing *H. erinaceus* in cancer treatment are: exploring the comprehensive effects of its extracts for use as cancer-preventive food supplements, and conducting detailed investigations of its isolated compounds and their mechanisms for targeted, personalized anticancer therapies in the future.

To date, research on *H. erinaceus* has primarily focused on gastrointestinal tumors. Many preclinical trials in tumor-bearing mice have highlighted its promise as a therapeutic agent. However, as there are no clinical trials to date, many active compounds and their mechanisms of action remain

unidentified. Consequently, while *H. erinaceus* is relatively well-studied, it holds considerable untapped therapeutic potential for future applications. Given its potential for large-scale cultivation, *H. erinaceus* could play a significant role in modern natural products-based medicinal biotechnology.

## 8. Comments

A previous case report published in *Global Advances in Health and Medicine* in 2012 reported spontaneous regression of MCC metastatic to the liver with the use of *Stamets 7* mushroom caps along with other treatments. The remission cannot be attributed to the mushrooms alone. However, mushroom extracts as we have pointed out have been shown to have an anticancer effect. A study of women with breast cancer found that freeze-dried mycelial powder from *Trametes Versicolor* otherwise known as Turkey Tail mushrooms enhanced natural killer cells. When used as an adjunct to chemotherapy and radiation, treatment was enhanced.

Our patient had lymph node metastasis and did not require any additional therapy beyond the medicinal mushrooms. Given that conventional therapies often cannot keep patients from recurrences, it is clear that investigation and testing of nonconventional therapies, such as mushrooms, would be beneficial to patients with MCC and to the medical community in general.

This case study presents the potential efficacy of medicinal mushroom capsules as an adjunctive treatment for Merkel Cell Carcinoma, highlighting a notable case of long-term remission. While these findings are promising, further research is needed to better understand the role of mushroom supplements in cancer treatment, particularly for those tumors resistant to conventional therapies.

## References

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