

CASE REPORT

Complete Spontaneous Regression of Merkel Cell Carcinoma Metastatic to the Liver: Did Lifestyle Modifications and Dietary Supplements Play a Role?

梅克尔细胞癌转移至肝脏的完全自发消退：生活方式改变和膳食补充是否有作用？

Regresión espontánea completa del carcinoma celular de Merkel metastásico en el hígado: ¿desempeñaron alguna función las modificaciones del estilo de vida y los complementos alimenticios?

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Cancer, case report, mushrooms, biopsy, tumor, diet, alternative therapies

Disclosure

The authors declare no competing interests.

CASE HISTORY

A 58-year-old white man noted a small lesion on the right side of his neck in August of 2006. The papule resembled an ingrown hair, was relatively uncomfortable, and slowly increased in size. Three months later, a reddish-purple nodule had grown to a diameter of 2 cm and was narrowly excised. Pathology revealed a nodular proliferation of atypical round cells with hyperchromatic nuclei displaying “salt and pepper” chromatin. Numerous mitotic figures were observed, and there was both individual cell and en masse necrosis. Immunohistological staining indicated positivity for cytokeratin 7, cytokeratin 20 (in a perinuclear dot-like pattern), neuron-specific enolase, and focal positivity for chromogranin and synaptophysin. The tumor cells were negative for TTF1 and S-100. On the basis of these results, a diagnosis of an unusual (cytokeratin 7 positive) Merkel cell carcinoma (MCC) was made. Full-body computed tomography and Octreotide scans were performed 1 month later and showed no evidence of disease. The patient underwent a wide local re-excision and sentinel lymph node biopsy 1 month later. Two of three sentinel nodes were positive, and the following month, he underwent a lymphatic dissection of the neck. None of 39 nodes removed was positive for MCC. Two months later, the patient began radiation treatment at the primary site and draining lymph node basin with a total of 5000 rads in 25 fractions. A positron emission tomography (PET) scan 2 months after the completion of radiation therapy showed no evidence of disease.

During regular follow-up 6 months after completion of therapy, a PET scan revealed a 1.2-cm lesion in the liver, which was confirmed by magnetic resonance imaging (MRI). Fine-needle aspiration cytology of the lesion indicated histological features consistent with his primary MCC tumor. It was determined that surgery and radiation were not possible given the location of the tumor. Because of the relatively poor outcomes and significant side effects associated with chemotherapy treatment of MCC, the patient refused this standard approach.

The patient began exploring possible immunostimulating and alternative therapeutic options. These included seeing a medical intuitive at the Upledger

Institute in Cumberland, Maine, for “somato-emotional release” therapy. The patient began taking dietary supplements including vitamin C, a multivitamin, Coenzyme Q10, turmeric, probiotics, and cod liver oil. Twice daily, he took 500 mg of a mushroom supplement (Stamets 7, Fungi Perfecti, Olympia, Washington). He also began using Flor Essence (Flora Manufacturing & Distributing Ltd, Vancouver, British Columbia) as a liver and colon cleanser and markedly altered his diet by removing meat, eggs, and dairy and substituting organic brown rice, beans, and sautéed vegetables. The patient also drank freshly prepared juices of organic vegetables (carrots, spinach, beet greens, Swiss chard, kale, and a beet) twice daily.

In March of 2008, 5 weeks after beginning these alternative approaches, an MRI revealed complete remission of his liver metastasis. Since March 2008, he has remained asymptomatic (a total of 53 months), and his most recent scan in February of 2011 showed no evidence of disease. He has maintained this strict diet and use of all supplements in addition to regular consultations with the medical intuitive since his remission.

COMMENTS

We report this case as an example of a rare, complete spontaneous remission of metastatic MCC and because of the potential role of the patient’s use of several alternative therapies. The patient was previously healthy, with no significant immune suppression or other medical problems. The Stamets 7 mushroom blend capsule taken by the patient is composed of seven mushroom species (Royal Sun Blazei, Cordyceps, Reishi, Maitake, Lion’s Mane, Chaga, and Mesima) and was used to support general immunity. Mushroom extracts have previously been shown to elicit anticancer responses via an immune-mediated mechanism.^{1,2} Recently, a study in women with breast cancer showed that freeze-dried mycelial powder from the *Trametes versicolor* mushroom enhanced natural killer (NK) cell activity.¹ In this study, *T versicolor* mycelium capsules were taken at 6 g/day and 9 g/day as an adjunct to chemotherapy and radiation. Patients who received these extracts had faster recovery of lymphocytes, enhanced

NK cell activity, and increased numbers of CD8+ T cells and CD19+ B cells.¹ Polysaccharide-Krestin (PSK), an extract of *T versicolor*, is believed to mediate many of these effects and has been shown to enhance NK cytolytic activity via a Toll-like receptor 2-mediated mechanism in both human peripheral blood mononuclear cells and in a HER2-positive breast cancer mouse model.³ Additionally, in a prostate cancer mouse model (TRAMP C2), in combination with the chemotherapeutic agent docetaxel, PSK resulted in a significant reduction in tumor burden as well as an increase in the number of tumor infiltration lymphocytes.²

In addition to the mushroom extract, fresh organic vegetable juice was a notable change to his diet. The World Health Organization indicates that diet is closely linked to cancer prevention, and numerous epidemiological studies have suggested that dietary phytochemicals could provide an effective intervention in cancer development.^{2,4} Phytochemicals, such as resveratrol, (–)-epigallocatechin gallate, [6]-gingerol, and myricetin, have been shown to directly alter molecular signaling pathways known to induce cancer cell death or to inhibit cancer cell proliferation; however, in most cases, the specific molecular and cellular targets have yet to be identified.⁵

Although it is unclear which, if any, of these specific interventions may have promoted tumor regression, the patient has remained free of MCC for more than 4 years. The present case represents one of 30 reported in the literature demonstrating a complete spontaneous regression of Merkel cell carcinoma and of those, it is one of only 10 documenting complete spontaneous regression of a metastatic lesion.⁶⁻¹¹

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