



Palliative care and Chinese medicine in a centenarian with primary hepatocellular carcinoma and 27-month follow-up: A case report

Yue Hu ^{a,b}, Xiao-hua Lan ^c, Yan-jie Cao ^{a,*}, Jing-qi Duan ^a, Qi-tao Ren ^{a,b}, Ying Jin ^a, Qiao-xiang Yin ^a, Rui-bing Deng ^a

^a Air Force Medical Center, PLA, Beijing, China

^b Graduate School of China Medical University, Shenyang, Liao Ning Province, China

^c Graduate School of Hebei North University, Zhangjiakou, Hebei Province, China

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ABSTRACT

The number of centenarians with cancer is increasing as the global population ages. The diagnosis and treatment for centenarians with tumor sometimes are specific, and there are currently less appropriate guidelines as references. We report a 104-year-old man with asymptomatic primary liver cancer (PLC) whose family decided to receive conservative and palliative care. The patient has been followed up for 27 months. He has been mainly received Chinese herbal medicine (CHM), nutritional support and thymalfasin injection intermittently, etc. During the 27-month follow-up, the patient has showed good compliance and tolerance without any complications of the tumor. Conclusion: Individualized palliative care and complementary medicine, based on multidisciplinary evaluation, traditional Chinese medicine, consultation with patients and their families about treatment options, etc., may help improve the life quality of centenarians with end-stage tumors.

1. Introduction

With the increasing global aging and high incidence of cancer with age, the number of elderly cancer patients is on the rise [1]. Because conventional cancer treatments (including surgery, radiotherapy, chemotherapy) may have some serious side effects on frail patients of this age, and because of the patients and their families' requirements of life quality, there are no optimal treatment options [2] or guidelines [3] for end-stage tumors in centenarians. We report a 104-year-old asymptomatic PLC patient who has been followed up for 27 months after multidisciplinary evaluation, supportive treatment and Chinese medicine. Non-invasive and conservative measures are placed at the top of diagnostic and treatment plan according to the requirement of the patient and his family. To the best of our knowledge, this is probably the oldest PLC patient at present receiving palliative care and Chinese medicine, with a better quality of life.

* Corresponding author.

E-mail addresses: xiaohugogo@163.com (Y. Hu), 2605713144@qq.com (X.-h. Lan), caoyanjie2021@126.com (Y.-j. Cao), duan7150@163.com (J.-q. Duan), XYQitaoRen@163.com (Q.-t. Ren), jinying13611304993@163.com (Y. Jin), yinqiaoxiang705_5@163.com (Q.-x. Yin), dengruibing1990@sina.com (R.-b. Deng).

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2. Case presentation

2.1. Ethical statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Written informed consent was obtained from the patient to publish this case report.

2.2. Chief complaints

A 104-year-old male was admitted in September 2020 with “Poor appetite for over 1 month”.

2.3. History of present illness and past illness

The patient was first admitted to our department in September 2020 and had been admitted several times since. His abdominal ultrasound from 2020.09 to 2022.12 showed enhanced echo in the left liver lobe from 2.32×2.84 cm (Fig. 1A) to 4.00×5.05 cm (Fig. 1B). The CT image of 2022.04 of the upper abdomen suggested a suspicious hypodense foci range of 3.5 cm (Fig. 1C). The assay suggested an increase in alpha-fetoprotein (AFP) from 47.3 ng/mL to 1665.60 ng/mL from 2021.05 to 2022.12 (Fig. 2).

The patient had a history of coronary artery disease, permanent pacemaker implantation (PPI), chronic heart failure, chronic obstructive pulmonary disease, type 2 respiratory failure, chronic renal dysfunction, anemia, and tuberculous pleurisy.

2.4. Physical examination

The patient’s height, weight and BMI were 172 cm, 70 kg, 23.7 kg/m^2 , respectively. In addition, his body temperature, blood pressure, heart rate were $36.3 \text{ }^\circ\text{C}$, 140/68 mmHg, 60 bpm, respectively.

Lungs and cardiovascular examinations were unremarkable. Abdominal examination revealed tenderness, no masses palpable, no pressure or rebound pain; no percussion pain in the liver area. No swelling of both lower limbs was found.

2.5. Laboratory examination

Other laboratory examinations are shown in Table 1 and Fig. 2.

2.6. Treatment and follow-up

The patient and his family refused liver MRI because of PPI. Contrast-enhanced PET/CT imaging, or contrast-enhanced liver ultrasonography, or liver puncture biopsy was also refused because of invasive or inconvenient. The clinical diagnosis of primary hepatocellular carcinoma was confirmed according to his ultrasound imaging characteristics of liver lesion and prominent elevation of serum AFP.

Taking into account of the patient’s advanced age, the wishes of the patient and his family, and the combination of multiple chronic diseases and multiple organ failure, he was given palliative and complementary treatment after multidisciplinary team evaluation of clinicians in geriatrics, gastroenterology, hepatobiliary surgery, imaging, nutrition and oncology, including supportive treatment, traditional Chinese medicine treatment, etc. The details were as follows: First, Thymalfasin injection (1.6 mg/time , 2 times/week) to improve body immune function; Second. Nutritional support: daily food calories $1800 \pm \text{kcal}$, rich of absorbable protein, various vitamins, such as egg custard, yogurt, fish, a variety of fresh fruit; in addition, oral multivitamin tablets daily, taking enteral nutrition

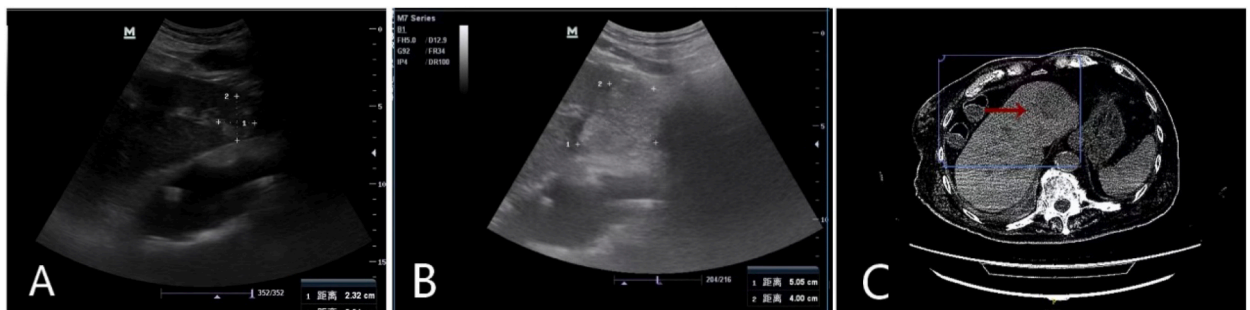
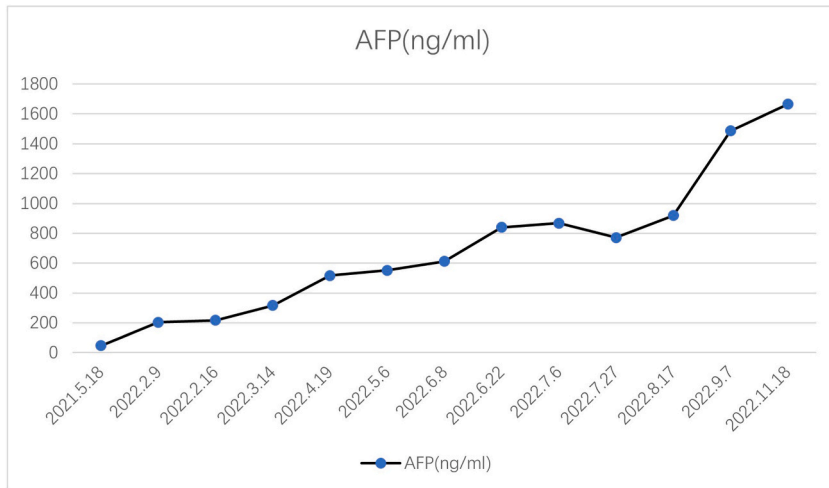


Fig. 1. A) Abdominal ultrasound in 2020.09 suggested moderately strong echogenicity in the left lobe of the liver; B) Abdominal ultrasound in 2022.07 suggested a significantly larger mid-intensity echogenicity in the left lobe of the liver than before; C) Abdominal CT suggestive of hypodense foci in the left lobe of the liver in April 2022.



*AFP: α -fetoprotein

Fig. 2. AFP tests of the patient. *AFP: α -fetoprotein.

Table 1
Laboratory tests of the patient in 2021.05 and 2022.10

	2021-5	2022-11
WBC ($\times 10^9$)	4.66	5.02
RBC ($\times 10^9$)	2.97	4.67
Hb (g/L)	91	131
Plt ($\times 10^9$)	151	190
N (%)	69.5	69.7
BUN (mmol/L)	15.2	18.2
Cr (mmol/L)	139	119
TCHO (mmol/L)	3.05	2.75
TG (mmol/L)	1.18	0.69
HDL (mmol/L)	0.6	0.87
LDL (mmol/L)	1.61	1.20
ALT (mmol/L)	16.8	14
AST (mmol/L)	10.2	22.2
Albumin (g/L)	34.8	39.45
Alpha-fetoprotein (ng/ml)	47.3	1665.6
Alpha-fetoprotein variant (ng/ml)		287.1
Abnormal prothrombin (mAU/ml)		63.04

powder 100–110 g mixed with water daily, and intermittent albumin infusion 20 g monthly; Third, Treatment of anemia: oral liquid of iron protein succinate, 15 ml, 2 times/day; human erythropoietin for injection (10,000 U/week); Fourth, Treatment of primary cardiovascular and respiratory diseases: improvement of myocardial ischemia, diuretics to reduce cardiac preload, intermittent administration of drugs such as spasmolysis, antiasthmatic, and phlegm drugs; Fifth, intermittent administration of Chinese herbal medicine (CHM) therapy for PLC, mainly including: Roasted astragalus 30 g, Angelica sinensis 10 g, Bupleurum 10 g, Scutellaria baicalensis 10 g, Ginseng 10 g, Woodlouse 6 g, Rhizoma Paridis 9 g, Salvia Chinensis 10 g, Curcuma zedoary 10 g, Edible tulip 10 g, Tortoise plastron 10 g, Polygonum cuspidatum 10 g, Artemisia Capillaris 10 g, Atractylodes 10 g, Poria 10 g, Pericarpium citri reticulatae 10 g, decocted in water, 100 ml/time, 2 times/day; in addition, Cinobufacin capsules were also taken at a dose of 0.3 g, 3 times daily. During the follow-up period, one or two Chinese medicines or doses were increased or decreased depending on the centenarian’s condition.

Table 2
The comprehensive geriatric assessments of the patient.

Items	Abbreviation	Score	Evaluate
Activity of daily living scale	ADLs	1	Poor self-care ability
The FRAIL Scale	FRAIL	4	frailty
Mini-Nutritional Assessment	MNA-SF	10	risk of malnutrition
Mini-mental State Examination	M MSE	27	normal cognitive function
Self-Rating Anxiety Scale	SAS	33	Normal
Self-Rating Depression Scale	SDS	36	Normal

The patient showed good compliance and tolerance without any unanticipated events during the 27-month follow-up. He wanted to continue with the current treatment without any physical or psychological burden (pain, depression, etc.). His comprehensive geriatric assessments were shown in Table 2. He was able to wash his face, brush his teeth, and eat by himself at present. The patient had no nausea or vomiting, with normal appetite, pain-free and well generally condition. He had normal communication ability, even read the newspaper and took notes every day.

3. Discussion

Currently, 56% of new diagnosed cancer and 71% of cancer deaths occur in the age group over 65 years old [4]. PLC is the fourth most common malignancy and the second leading cause of tumor death in China [5]. Treatments for liver cancer mainly include surgical resection, liver transplantation, radiotherapy, interventional therapy, targeted therapy, immunotherapy, etc [6]. However, there is no conclusion as to which treatment is better for centenarians with PLC. Centenarians are often combined with multiple chronic diseases and multi-organ dysfunction, with poor liver reserve function, reduced tolerance to surgery, chemotherapy and radiotherapy, and relatively increased complication rates.

Clinicians are exploring effective treatments that are better suited to the characteristics of elderly or centenarian PLC patients recently. Meng Z et al. reported a 99-year-old male with PLC who underwent external beam radiation therapy (EBRT) [7]. The patient's first EBRT treatment inhibited one of his lesions. He underwent a second course of EBRT during the follow-up. Unfortunately, the patient eventually died from severe pneumonia at his 103-year-old. According to Dr. Meng's experiences, EBRT is a non-invasive local treatment and a feasible alternative for elderly patients who refuse surgery. Palliative care and complementary therapy may have a role in improving the life quality of the elderly patients [8,9]. In our case, palliative care with traditional Chinese medicine (TCM) and supportive treatment may not be able to inhibit the tumor growth, but has greatly improved the life quality of the centenarian.

Recently, TCM has been shown to have potent anticancer effects and has generated considerable interest as candidate for cancer complementary therapy and palliative care. Cinobufacini, a traditional Chinese medicine containing the water-soluble components of Chansu, exhibits a variety of biological activities, such as anesthetic, cardioactive, and antineoplastic properties. It was reported that Cinobufacini inhibited cell proliferation, induced cell differentiation and apoptosis, disrupted cell cycle, inhibited tumor angiogenesis, reversed multidrug resistance of tumor cells, and regulated the immune response of tumor cells. The application of traditional Chinese medicine may improve the immunity of patients against tumor, with fewer toxicity and side effects.

The comprehensive therapies of the elderly with end-stage tumor include the principle of individualization, identifying patient-specific vulnerabilities, and predicting the potential unexpected risks of various therapies [10]. Data related to 229 elderly patients with end-stage cancer in a retrospective study by Sganga [11] et al. showed: elderly patients with a high number of comorbidities; high indicators of comprehensive care; a greater need for access to palliative care due to the complexity of the co-existing social, psychological, and medical needs of centenarians. Palliative care based on multidisciplinary team assessment may be more appropriate for the oldest old patients [12], but there is currently less evidence from relevant studies [13]. Our case shows that complementary medicine and palliative care including an individualized and multidisciplinary assessment, traditional Chinese treatment, nutritional support therapy, treatment of the primary diseases, etc. may improve the life quality of the oldest old patients with end-stage tumors.

Author contribution statement

All authors listed have significantly contributed to the investigation, development and writing of this article. Yue Hu and Xiao Hua Lan shared the first author.

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Declaration of competing interest

All authors have completed the ICMJE uniform disclosure. The authors have no conflicts of interest to declare.

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