

# Analysis of Visual Signs in Gastric Cancer Patients Based on Zhuang Medicine Visual Diagnosis: A Case Series

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**Abstract:** Zhuang medicine visual diagnosis is one of the most characteristic diagnostic methods of Zhuang medicine, which has a high accuracy rate in the early auxiliary diagnosis of some major diseases. In this paper, three cases of gastric cancer patients were selected for Zhuang medicine visual diagnosis and their visual signs were analyzed to provide methods and evidence for the clinical use of Zhuang medicine visual diagnosis to assist in the diagnosis of gastric cancer.

**Keywords:** Case series; Zhuang medicine; Visual diagnosis; Gastric cancer

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## 1. Introduction

Gastric cancer has severely threatened the lives of people in China. In 2020, 374,000 people died from gastric cancer in our country. Early gastric cancer is defined as a gastric epithelial malignancy with invasion depth to the mucosa or submucosa, regardless of lymph node metastasis. One of the major threats of gastric cancer to human life and health lies in the timing of diagnosis. Currently, the diagnosis of gastric cancer relies on imaging examinations such as gastroscopy. Most patients are already in the advanced stage when gastric cancer is diagnosed, missing the opportunity for early intervention and treatment. Late diagnosis leads to a decrease in patient survival rate and quality of life<sup>[1]</sup>. Zhuang medicine visual diagnosis originates from the intuitive disease diagnosis and treatment experience of the Zhuang ancestors, has a history of thousands of years, and is still applicable today. The accuracy of Zhuang medicine visual diagnosis has been effectively verified in clinical practice, and it has advantages in early diagnosis of some major diseases, such as being economical, reducing patient pain, and preventive.

Among the numerous diagnosis methods of Zhuang medicine, visual diagnosis holds an extremely important position. Zhuang medicine believes that the eyes (“Le Da”) are the essence of the three qi of heaven, earth, and human. The eyes are nourished by the three qi and can see, serving as a window given by heaven and earth to humans. The essence of the three channels and two paths in the human body all flow into the eyes. If a disease occurs in the human body, it can be reflected in the eyes. Under normal physiological conditions, the eyes can contain and perceive everything; under pathological conditions, they can also reflect various diseases. The morphology and color of the dragon vein network and spots appearing in the white of the eye (“Le Da”) are important symbols for Zhuang medicine to judge the pathological changes and nature of diseases<sup>[2]</sup>. In addition, the eyes are located in the heavenly part, growing on the “Qiao Wu” (brain) and directly under its command. Therefore, in disease diagnosis, Zhuang medicine places great emphasis on visual diagnosis, believing that it can diagnose diseases, predict prognosis, and determine death. Zhuang medicine divides the human white of the eye (sclera) into twelve equal parts according to the clock, with the limbus of the bulbar conjunctiva as the edge and the pupil as the center of the coordinate axis. The upper edge of both eyes is 12 o’clock, the lower edge is 6 o’clock, the inner canthus is 3 o’clock, and the outer canthus is 9 o’clock. Different parts of the human body are regularly projected onto the white of the eyes. In a diseased state, abnormal blood vessels appear in the corresponding areas of the white of the eyes. By observing the direction, size, color, curvature, and terminal spots of the abnormal blood vessels, an initial diagnosis of the disease can be made. Especially in the early diagnosis of certain chronic and major diseases, Zhuang medicine visual diagnosis has a high accuracy rate. The operation method of Zhuang medicine visual diagnosis is: under natural light or sufficient illumination, the person being examined sits upright and relaxed, with both eyes naturally looking straight ahead. A vertical line and a horizontal line are drawn intersecting at the center of the pupil. The examiner and the person being examined sit face to face on the same horizontal line. When examining the white of the right eye, the examiner uses their left thumb to gently fix the upper eyelid of the person being examined, and then uses their right index finger as a guide: the index finger is placed directly ahead of the pupil, with the fingertip and the center of the pupil at the same height, and the pupil is approximately 20 cm away from the fingertip, so that the person being examined can clearly see the examiner’s fingertip. Then, the examiner slowly moves the index finger downward along the vertical line, instructing the person being examined to follow the fingertip with their gaze until the upper part of the white of their eye is fully exposed. Subsequently, the examiner’s right index finger moves from the center of the pupil along the horizontal line to the left and right, checking the left and right sides of the white of the right eye. Finally, the examiner gently presses and fixes the lower eyelid of the person being examined with their left thumb, and moves their right index finger upward from the center of the pupil along the vertical line to check the lower part of the white of the right eye. Thus, the upper, lower, left, and right parts of the white of the right eye have all been checked. When checking the white of the left eye, the examiner uses their right thumb to fix the eyelid and their left index finger as a guide for inspection. After fully examining both eyes, the observed blood vessel patterns, sizes, colors, curvatures, and terminal spots on the white of the eyes are quantified and scored according to the six-step scoring method. A score exceeding 11 points, combined with clinical manifestations, can confirm the diagnosis of the disease. The specific quantitative scoring criteria are shown in **Table 1**.

Zhuang medicine believes that the projection area of the stomach is in the 12 o’clock and 6 o’clock directions. Three patients with gastric cancer were selected to observe the 12 o’clock and 6 o’clock areas of the white of their eyes by referring to the operation method of Zhuang medicine visual diagnosis. The eye

signs (abnormal blood vessels in the white of the eyes) were analyzed to provide methods and evidence for the clinical application of Zhuang medicine visual diagnosis in assisting the diagnosis of gastric cancer (**Figure 1**).



**Figure 1.** Schematic diagram of visual diagnosis in Zhuang medicine

**Table 1.** Quantitative scoring table for visual diagnosis in Zhuang medicine

Steps	Points		
	3	2	1
Step 1: Direction of the veins	Towards the pupil or broken off	Towards other directions	Chaotic and disorganized
Step 2: Size of the veins	Large at the root or overall large	Generally large	Small
Step 3: Color of the veins	Dark red, purple	Bright red	Light red
Step 4: Curvature of the veins	Spiraled or highly curved	Snake-like	Straight or irregular
Step 5: Spots at the end of the veins	Large patches or spots	Small spots	No spots

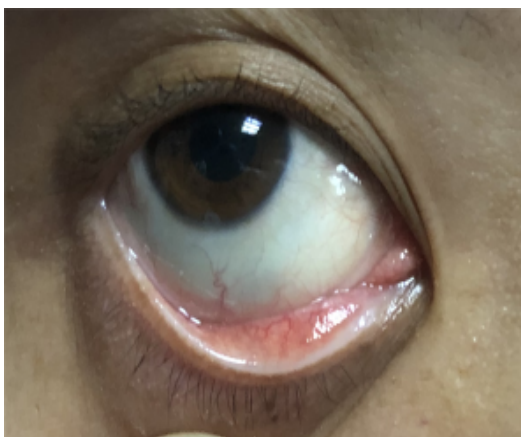
## 2. Case presentation

The three cases of gastric cancer patients selected in this report all come from the Guangxi Medical University Cancer Hospital. Cases with ocular diseases, alcohol consumption, staying up late, fatigue, and other conditions unsuitable for ocular diagnosis were excluded.

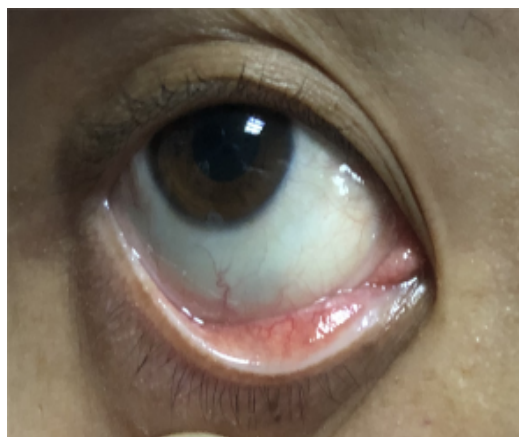
### 2.1. Case 1

Ms. Xu, a 64-year-old female, had suffered from repeated dull pain in the upper abdomen for over eight years, which worsened over the past month. Gastrosocopy showed gastric antrum cancer invading the gastric body and pylorus. Pathological results indicated poorly differentiated adenocarcinoma of the gastric antrum tissue and severe chronic atrophic inflammation of the mucosa under the cardia. Using the Zhuang medicine visual diagnosis method to examine the patient, it was found that the main ocular signs were: a thick red vein extending towards the pupil at the 12 o'clock position of the right eye's sclera (scoring 3 points for each of the following: extending towards the pupil, red color, thick vein, and large curvature of the vein; 1 point for no small spots at the end of the vein) (**Figure 2**). The cumulative score using the six-part scoring method was 13

points. Similar ocular signs were also observed at the 6 o'clock position of the right eye and the 12 and 6 o'clock positions of the left eye (**Figures 3 to 5**). Based on the visual signs of Zhuang medicine visual diagnosis and the patient's clinical symptoms, a preliminary diagnosis of gastric cancer can be made.



**Figure 2.** A thick red vein extending towards the pupil at the 12 o'clock position of the right eye's sclera



**Figure 3.** 6 o'clock position of the right eye



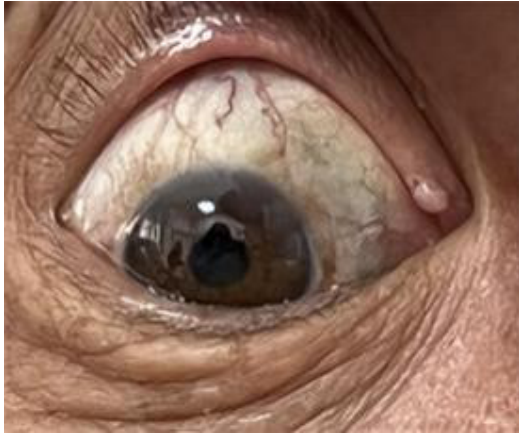
**Figure 4.** 12 o'clock position of the left eye



**Figure 5.** 6 o'clock position of the left eye

## 2.2. Case 2

Mr. Zhu, a 72-year-old male, had suffered from dull pain in the upper abdomen for over 10 years, which worsened over the past two months. Gastroscopy showed cancer in the gastric body, angle, and antrum. Pathological results indicated poorly differentiated adenocarcinoma of the lesser curvature of the gastric antrum (Lauren diffuse infiltrative type). Using the Zhuang medicine visual diagnosis method, it was found that the main ocular signs were chaotic veins in the 12 o'clock region of the right eye's sclera, with thick red veins extending towards the pupil, large curvature, and small plaques at the end (scoring 14 points using the six-part scoring method) (**Figure 6**). Similar ocular signs were also observed at the 6 o'clock position of the right eye and the 12 and 6 o'clock positions of the left eye (**Figures 7 to 9**). Based on these ocular signs and the patient's clinical symptoms, a preliminary diagnosis of gastric cancer can be made.



**Figure 6.** Chaotic veins in the 12 o'clock region of the right eye's sclera



**Figure 7.** 6 o'clock position of the right eye



**Figure 8.** 12 o'clock position of the left eye



**Figure 9.** 6 o'clock position of the left eye

### 2.3. Case 3

Mr. Su, a 65-year-old male, had suffered from dizziness and fatigue for 20 days. Gastric malignancy was detected five days ago. Gastroscopy showed gastric antrum cancer (Borrmann type III). Pathological results indicated poorly differentiated adenocarcinoma, partially signet-ring cell carcinoma, and mild chronic gastritis of the cardia. Using the Zhuang medicine visual diagnosis method, it was found that the main ocular signs were thick red veins extending towards the pupil at the 12 o'clock position of the right eye's sclera, with large curvature, a distinct Y shape, and small spots at the end (scoring 15 points using the six-part scoring method) (**Figure 10**). Similar ocular signs were also observed at the 6 o'clock position of the right eye and the 12 and 6 o'clock positions of the left eye (**Figures 11 to 13**). Based on these ocular signs and the patient's clinical symptoms, a preliminary diagnosis of gastric cancer can be made.



**Figure 10.** Thick red veins extending towards the pupil at the 12 o'clock position of the right eye's sclera



**Figure 11.** 6 o'clock position of the right eye



**Figure 12.** 12 o'clock position of the left eye



**Figure 13.** 6 o'clock position of the left eye

### 3. Discussion

Through the observation of the scleral eye signs of the three gastric cancer patients mentioned above, we found common characteristics among them: abnormal blood vessels in a straight line shape were visible at the 12 o'clock or 6 o'clock positions of the sclera, extending towards the iris. There were interruptions in the middle of the blood vessels, and some parts of the sclera showed patchy shadows with black stagnation points in the middle, which were consistent with the visual signs of gastric cancer in Zhuang medicine visual diagnosis. In terms of the duration of the disease, Case 2 had a history of more than 10 years, and the blood vessels observed at the 12 o'clock or 6 o'clock positions of the sclera were thicker than those in Case 1. In terms of the severity of the disease, Case 2 was the most severe, with the more pronounced extension of the blood vessels towards the iris and the appearance of patchy shadows. Based on this analysis, there may be a positive correlation between the thickness of the blood vessels appearing at the 12 o'clock or 6 o'clock positions of the sclera in gastric cancer patients and their disease duration, tumor size and distance from the interruption, severity of the disease, and the size of the patchy shadows.

Medical experience comes from life, and the Zhuang people are skilled in singing and dancing, relying on

mountain songs to eulogize their unique civilization. “The depth of color determines the duration, the frequency of curvature distinguishes severity, turbid veins indicate dampness, scattered veins often suggest wind, veins extending into the pupil mostly belong to fire, veins close to the edge are mostly cold, black stasis and blue spots indicate worms, clinical ocular diagnosis distinguishes clearly.” This ancient mountain song provides a glimpse into the tradition of Zhuang medicine visual diagnosis. In the development of visual diagnosis, Zhuang doctors have been inspired by veterinary practices of examining cattle and horses. Today, Zhuang medicine visual diagnosis has achieved certain accomplishments <sup>[2]</sup>.

Zhuang medicine visual diagnosis has made significant contributions in the field of digestive diseases, especially gastric diseases. Li *et al.* <sup>[3]</sup> confirmed the consistency between the ocular manifestations of peptic ulcers in Zhuang medicine and gastroscopy findings through clinical observation. Song *et al.* <sup>[4]</sup> derived notable ocular diagnostic features of gastric diseases through long-term clinical observation and could determine the strength of healthy qi and pathogenic factors, diagnose diseases, and predict prognosis through ocular diagnosis. In the diagnosis of peptic ulcers, peptic ulcer eye signs were summarized, verifying the high accuracy of Zhuang medicine visual diagnosis in diagnosing gastric cancer and peptic ulcer <sup>[5]</sup>.

## 4. Conclusion

Through this case series, we have demonstrated that Zhuang medicine visual diagnosis is an effective diagnostic technique with Zhuang characteristics. This diagnostic method is simple, convenient, and standardized, with high specificity in the diagnosis of gastric cancer. It can be used as a screening method, especially valuable for promotion at the grassroots level. In clinical practice, the integrated application of Zhuang medicine visual diagnosis has good reference value for early diagnosis, prognosis judgment, and disease monitoring of patients, and it is worthy of promotion.

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## Disclosure statement

The authors declare no conflict of interest.

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