



## A Historical Perspective on Diagnosing Death in Persian Medicine

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### Dear Editor

Throughout history, scholars have long been fascinated by the concept of death and its many facets. Notably, the post-medieval era witnessed significant advancements in the definition of death and the establishment of diagnostic criteria [1-3]. However, there are still ongoing debates in this field [4, 5].

A comprehensive exploration of surviving literature from medieval Persia highlights the great importance that scholars of that era placed on death and its diagnosis. Remarkably, these scholars dedicated considerable attention to this subject in their writings. Among them, *Qutb al-Din al-Shirazi* (1236–1311 AD) (Figure 1), a renowned Persian polymath, built upon the knowledge of his predecessors and presented one of the most comprehensive diagnostic criteria for death in traditional Persian medicine, which can be stated as follows:

“1. Put the suspected case in the prone position. If the palmar surfaces of the case’s hands are placed upward and the nails are dull, the case is dead.

2. [The physician should] place his/her hands [fingers] on both [suspected case’s] testes [spermatic cords]. If [the physician] locates a pulsatile vessel in that location, the case is alive.

3. Between the ‘al-haleb’ [ureter] and the ‘al-ahlil’ [urethra] is a pulsatile vessel. If such a pulsation is being sensed, the patient is still alive.

4. The physician should lubricate his/her finger with lotus oil. Then, he/she should insert it into the [case’s] anus [rectum], and keep it there. If a pulsation is sensed, the case is alive.



Fig. 1. Imaginary portrait of Qutb al-Din al-Shirazi by Amir Ali Hashempur.

5. [The physician] should apply pressure under the [case's] tongue. If a pulsatile vessel is felt, the patient is alive.

6. [The physician] should examine the [case's] eyes [corneas]. If they are gleaming, the patient is still alive.

7. Place a very thin thread in front of the case's mouth and nose. If the thread moves, the case is alive.

8. Place the case in a dark room; then, shine a light [source] into the [case's] eyes. If the eyes [pupils] reaction resembles that of an alive person [pupillary light reflex], the case is alive.

9. Place the case in a well-lit room. Then, [the physician] should examine the [case's] eyes. If he can see his reflection in the [case's] eyes [corneas], the case is still alive”.

It is noteworthy that *Qutb al-Din*'s reference to “a pulsatile vessel between the ‘al-haleb’ [ureter] and the ‘al-ahlil’ [urethra]” appears to refer to the arteries that originally derived from the common iliac arteries, i.e., the femoral arteries (all recent names are written in modern terminology). However, it has not been definitely confirmed.

Based on these statements, even though the Persian polymath *Razi* or *Rhazes* (865-925 AD) was probably the first person to notice the pupillary reaction to light, *Qutb al-Din* was the first person in medical history who defined the pupillary light reflex as a diagnostic criterion for death [6].

Another way used to verify death in medieval Persia was to place a water container on the individual's

chest. If the water level within the container stayed constant over time, it indicated the absence of chest wall motion associated with respiration, which could be indicative of death [7].

It is also worth noting that medieval Persian scholars recognized the importance of pulse and respiration as vital life markers. For instance, *Ibn-e Sina* or *Avicenna* (980-1037 AD) recommended monitoring respiration and pulse to prevent fatal outcomes while administering drugs with potentially lethal effects, such as opium, for therapeutic purposes [8]. Moreover, according to his writings, burials were postponed for three days in cases where the diagnosis of death was undetermined due to conditions such as stroke (known as “*sakteh*”) [9].

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