

## Pericardial pathology 900 years ago

### *A study and translations from an Arabic medical textbook*

Rabie E. Abdel-Halim, FRCS Ed, Salah R. Elfaqih, FRCS.

#### ABSTRACT

This is a study and translation of the section on pericarditis in Al Taisir book written by the Muslim physician Ibn Zuhr (Avenzoar) who lived and practiced in Eshbeelia (nowadays Seville, Andalusia, Spain) between 1091-1162 AD. Ibn Zuhr described the serous type of pericarditis as well as the pathological findings in fibrinous pericarditis. His description of the latter may also fit with the picture of chronic fibrous pericarditis. He also described acute purulent pericarditis and involvement of the pericardium in cases of acute carditis with hectic fever. Ibn Zuhr's description of the pericardial effusion in serous pericarditis as "looking like urine" indicates that he must have seen a sample of the fluid obtained either by pericardiocentesis or during a post-mortem examination. However, his description of "solid substances accumulating on the inside of the heart's covering looking like layers upon layers of membranes" could not have been made possible without post-mortem dissection.

*Saudi Med J 2007; Vol. 28 (3): 323-325*

*From the Division of Urology, Department of Surgery, King Saud University, College of Medicine, King Khalid University Hospital, Riyadh, Kingdom of Saudi Arabia.*

*Address correspondence and reprint request to: Prof. Rabie E. Abdel-Halim, Professor of Urology, Division of Urology, Department of Surgery, King Saud University College of Medicine, King Khalid University Hospital, PO Box 7805, Riyadh 11472, Kingdom of Saudi Arabia. Tel. +966 (1) 4672541. Fax. +966 (1) 4679493. E-mail: rabie@doctors.org.uk*

Many medical historians<sup>1-6</sup> attributed the description of pericarditis to the twelfth-century Muslim physician Ibn Zuhr, known in Medieval Europe as Avenzoar. However, the text of this description was not cited by any of those authors as, at that time, they had no available primary source to quote directly.<sup>1-5</sup> In 1931, George Sarton urged scholars to compile a critical

edition of the Arabic text of Ibn Zuhr's most famous book: Kitab Al-Taisir Fi Al-Mudawat Wa Al-Tadbeer (Book of Simplification Concerning Therapeutics and Diet).<sup>1</sup> Only in 1983, did Sarton's wish become a reality when the book was published by the Arab League Educational Cultural and Scientific Organization under the editorship of Micheel Al-Khori who relied on 4 manuscripts of Kitab Al-Taisir, one of which was scribed in Barcelona only 4 years after the death of Ibn Zuhr.<sup>7</sup> However, the whole book has not been translated yet from Arabic to any European language and according to our knowledge, the full text of Ibn Zuhr's description of pericarditis is, still, not yet available in English. This study, therefore, is a review and translation of the section on pericarditis in Ibn Zuhr's book Al-Taisir aiming at making it available for further analysis and evaluation.

**Methods of the study.** The above-mentioned original Arabic two-volumes-in-one edition of Ibn Zuhr's book Kitab Al-Taisir Fi Al-Mudawat wa Al-Tadbeer was reviewed. The whole chapter titled "Dhikru Amradd Al-Qalb" (The mentioning of diseases of the heart) was studied and its section on "Dhikru Al-Ruttobah Allati Taaridd Fi Ghishaa Al-Qalb" (The mentioning of the fluid collection which may occur in the covering of the heart) was translated. Furthermore, relevant references including books, periodicals and online history of medicine resources were reviewed.

**Ibn Zuhr and his Book Al Taisir.** Ibn Zuhr, known in Latin Europe as Avenzoar, Abumeron or Abynzoar, is the Muslim physician Abu-Marwan Abdel-Malik son of Zuhr son of Abdel-Malik son of Muhammad son of Marwan son of Zuhr Al-Eyadi Al-Eshbeely who lived and practiced in Eshbeelia (nowadays Seville, Andalusia, Spain) between 1091-1162 AD.<sup>1,8-10</sup> The name Al-Eyadi refers to his original Arabian tribe Eyad, descendants from Nizar son of Maad son of Adnan.<sup>11-15</sup> Details of his biography with an extended commentary on his book Al-Taisir, known in Latin Europe also as Al-Tersir or Theisir,<sup>3,4</sup> have been recently published.<sup>7</sup>

**Ibn Zuhr on Diseases of the Heart.** The section on diseases of the heart in Al-Taisir book of Ibn Zuhr is situated next to diseases of the lung and immediately before diseases of the liver.<sup>16</sup> The section starts with the following introductory statement translated from page 179 (Vol. I): “Diseases of the heart may occur primarily or may be secondary to the other organs. Also, diseases of the heart may cause other organs to suffer from deleterious effects, ailments and symptoms.”

After summing up the anatomy and function of the heart and appraising the views of ancient doctors, Ibn Zuhr proceeded with discussing the different cardiac diseases starting with “*Tawarrum*” (swelling), “*Ikhtilaj*” (flutter, arrhythmias) and then “*Khafaqan*” (palpitation); the latter, discussed under a separate title, was followed by the section on pericarditis, the subject of this study.

**Ibn Zuhr on Pericarditis.** This part was discussed by Ibn Zuhr under a separate title as seen in the oldest of the 4 manuscripts of the book.<sup>7,9</sup> The title and the text on pericarditis are hereby translated from pages 183 and 184 of Kitab Al-Taisir:<sup>16</sup>

ذَكَرَ الرُّطُوبَةَ الَّتِي تَعْرِضُ فِي غِشَاءِ الْقَلْبِ<sup>(١٤٥)</sup>

ويعرض في القلب رطوبة مائية كأنها بول يكون في غشائه محصوراً ، ومتى عرض ذلك فإن العليل يقل لحمه ويذهب حتى يموت كما يموت سائر المذبولين<sup>(١٤٦)</sup> . وعلاج ذلك ، إن كان له علاج ، فإن لم أعالجه بعد ولا ذكر جالينوس أنه عالج هذه العلة ، فإن كان له علاج فيها يلطّف ويحلل ويجفف ويكون عطراً ، ليسرع الوصول إلى هنالك مثل عصارة الرازيانج وأشباهاها . ويعرض فيه أن يكون غشاؤه ( من داخل )<sup>(١٤٧)</sup> قد تراكم عليه أشياء صلبة كأنها أغشية بعضها على بعض ، ولم يذكر أيضاً أحد علاجاً لهذا ولا أجد في نفسي طريقاً أسلكها أتق بها في علاجه ، ويمكن أن ينفع في ذلك اللطيف الجوهر العطر الذي يكون فيه تحليل

“On the fluid collection that may occur in the covering of the heart: *In the heart, a watery fluid collection looking like urine, may occur. It is found enclosed and contained within its covering. When this happens, the patient will loose flesh until he dies in the same way as the rest of cachectic [patients] die.*

*As for the treatment of this condition, if there is ever a treatment; indeed, I have not been [able] yet to treat it. Neither did Galen mention that he treated this illness. So if there could be a treatment, it would be by soothing, dissolving and drying medications which should be of aromatic nature so that they can quickly reach there; such as the juice of “Raziyanj” (Shamar, Shamrah, common fennel, *Foeniculum vulgare*) and such like.*

*It may also happen that solid substances accumulate on the inside of the heart’s covering looking like layers upon layers of membranes. Also, no one mentioned a treatment for this; and I cannot myself think of a trusted plan to follow as treatment for it. However, mild-nature, aromatic*

*medicaments with liquefying, tonic and moisturizing (“muratteb”) qualities, may be of benefit.*

*And hectic fever may occur because of a disturbed dry temperament (“sooa mizaaaj yabis”) in the substance of the heart itself or in its recently hardened fluid [exudate]. If this is at its beginning, it can be treated with moisturizing drugs using, in case the dryness is simple, medications such as the scent of apple or drinking freshly obtained milk of young goats together with repeated use of fresh lukewarm water baths. But if the dryness is associated with fever, the smelling of “Nilover” flowers (Water Lilly, Lotus) and “al-banafsaj” flowers (Viola odorata, garden violet, sweet violet) is more beneficial than apples. I did mention that [before] in the treatment of fever of cachexia and the hectic fever with its [different] stages. And in the covering of the heart, swelling may occur. It is, in fact, a hot type of swelling. And perhaps, if the physician hurried up and did not delay the treatment but quickly, without waiting, venesected the patient and emptied plenty of blood, the patient may recover. Furthermore, he should quickly start cooling the temperament of the heart and strengthening its substance with medicaments such as one part of the syrup of “Rayhan” (Basil) or the syrup of “Sandal” (Sandalwood) mixed in 4 times its volume of cooled water. And instruct the patient to regularly smell the aroma of fresh “Rayhan” (Basil) and “Nilover” (Water Lilly, Lotus). Conversely, if the physician delayed [the treatment] even for a short time, the patient will die not because the covering of the heart is one of the vital central organs but due to its vicinity and close proximity with the heart itself.”*

**Discussion.** In Al-Taisir book, Ibn Zuhr followed Al-Razi’s scheme (Rhazes, 841-926 AD) of methodically classifying diseases according to the organs affected.<sup>17</sup> Each chapter starts with a collective definition and primary classification of the diseases followed by a quick summary of the organ’s normal and abnormal structure analyzing the origin of the pathological disturbance then discussing the clinical picture, differential diagnosis and prognosis. In addition, he critically reviewed the views of the ancients in the light of his own experience.<sup>5,7,16</sup> This is in agreement with Cumston who described the Arabian physicians as keen observers who excelled in diagnosis and prognosis with their description of symptoms showing a precision and an originality that could be only obtained by direct study of the disease.<sup>18</sup>

In the beginning of the chapter (page 179), following the primary classification of the heart diseases, Ibn Zuhr stated that “... the heart, as we came to know [before], is a principal vital organ..”<sup>16</sup> However, there was no previous mention of the anatomy of the heart or its function in all the preceding pages of the book. This confirms the previous finding<sup>7</sup> that Al-Taisir was planned as the second part of a multi-author medical

textbook. As such, it contained, only, the special section (particularia) of medicine; whilst the general principles (generalialia) including anatomy were placed in the separate first part: *Kitab Al-Kulliyat Fi Al Tibb*, the Book of Generalities in Medicine, the famous *Colliget* in the Latin translation, authored by Ibn Rushd (Averroes) who lived and practiced in Cordoba (nowadays Cordova, Andalusia, Spain) between the years 1125 and 1198 AD and was a colleague and great friend of Ibn Zuhr.<sup>7</sup> Seven editions of the Latin translation of *Al-Taisir*, printed between 1490 and 1554, contained the 2 books together.<sup>1,7</sup> Accordingly, this is a clear documentation of the first-ever example of joint authorship of a medical textbook.

Ibn Zuhr not only described the serous type of pericarditis<sup>2-5</sup> but he also accurately portrayed the pathological findings in fibrinous pericarditis. His description of the latter may also fit with the picture of chronic fibrous pericarditis. He also described acute purulent pericarditis and involvement of the pericardium in cases of acute carditis with hectic fever. Ibn Zuhr's description of the pericardial effusion in serous pericarditis as "looking like urine" matches well with the current description of this fluid as "straw colored".<sup>19</sup> This, also, indicates that he had seen and observed a collection of a fluid that could have never been obtained except by either pericardiocentesis or post-mortem examination. On the other hand, Ibn Zuhr's description of "solid substances accumulating on the inside of the heart's covering looking like layers upon layers of membranes" could not have been made possible without carrying out a post-mortem dissection. This is in line with the emphasis laid by his predecessors in the Islamic Era on the importance of a thorough knowledge of anatomy for both physicians and surgeons.<sup>7,20</sup>

## References

1. Sarton G. Introduction to the History of Science. Carneje Institution of Washington, Baltimore: Williams & Wilkins Company; 1931. Reprinted: New York; Robert E. Krieger Publishing Co Inc; 1975. Vol. II, Part 1. p. 231-234.
2. Garrison FH. An introduction to the history of medicine with medical chronology, suggestions for study and bibliographic data. 3rd edition revised and enlarged, Philadelphia and London: W B Saunders Company; 1924, p. 122-123.
3. Campbell D. Arabian Medicine and its influence on the Middle Ages. London: Kegan Paul, Trench, Trubner & Co. Ltd; 1926. p. 90-92.
4. Major RHA. History of medicine. Vol. 1. Springfield, Illinois: Charles C Thomas-Publisher; 1954. p. 252-254.
5. Neuburger M. History of Medicine, Ernest Playfair, translator, Vol. I. London: Oxford University Press; 1910. p. 371-372, 391.
6. Haddad FS. Ibn Zuhr and experimental tracheostomy and tracheotomy. *J Amer Coll Surg* 2004; 199: 665.
7. Abdel-Halim RE. Contribution of Ibn Zuhr (Avenzoar) to the progress of surgery: A study and translations from his book *Al-Taisir*. *Saudi Med J* 2005; 26: 1333-1339.
8. Ibn Abi-Usaybia. *Uyunul-Anba Fi-Tabaqat Al-Atibaa* (The sources of the knowledge of classes of doctors). Nizar Reda, ed. Beirut: Dar Maktabat al Hayat; 1965. p. 519-521, 530-533.
9. Al-Khoori M, *Kitab Al-Taisir Fi Al-Mudawat Wa Al-Tadbeer* By Marwan Ibn Zuhr. In: Al-Khoori M, editor. Introduction. Damascus: Darul Fikr Press for the Arab Educational Scientific and Cultural Organization; 1983. p. Zal - Qaf.
10. Al-Dhahaby MAO. *Tarikh Al Islam Wa Wafayat Al-Mashaheer Wa Al-Aalaam*. In: Tadmury OA, editor. Vol. Hawadith Wa Wafayat (551-560 Hijra). Beirut: Dar Al-Kitaab Al-Araby; 2003. p. 230.
11. Al-Maqary Al-Tilmisany AM. *Nafh Al-Tteeb Min Ghosn Al-Andalus Al-Ratteeb*. In: Abdel-Hameed MM, editor. Vol. IV. Beirut: Dar Al-Kitab Al-Araby. Undated. p. 379-399.
12. Ibn Makoola AH. *Al-Ikmal Fi Rafae Al-Ertiaab Aan Al-Muatalaf Wa Al-Mukhtalaf Fi Al-Asmaa Wa Al-Kunaa Wa Al-Ansaab*. 1st ed Vol. III. Beirut: Darul Kutub Al-Elmeyyah; 1990. p. 346.
13. Ibn Hazm AAS. *Jamharat Ansab Al-Arab*. In: Haroon AM, editor. Cairo: Darul-Maarif; 1962. p. 327.
14. Van Deek E. *Iktifaa Al-Qanua Bima Huwa Matboa Min Ashhar Al-Taaleef Al-Arabeyyah Fi Al-Matabei Al-Sharqeyyaah Wa Al-Gharbeyyah*. In: Al-Bibillawy AMA, editor. *Al-Fajjalah*, Misr, Egypt: Al-Hilal Press; 1896. p. 221-222.
15. Marhaba MA. *Al Jamie Fi Tarikh Al Ulum Inda Al Arab* (Histoire des sciences chez les Arabes). 2nd ed. Beyrouth-Paris: Editions Oueidat et Editions Mediterranee; 1988. p. 272-274.
16. Ibn Zuhr. *Kitab Al-Taisir Fi Al-Mudawat Wa Al-Tadbeer*. In: Al-Khoori M, editor. 1st ed, Vol. 1. Damascus: Darul Fikr Press for the Arab Educational Scientific and Cultural Organization; 1983. p. 179-185.
17. Abdel-Halim RE. Pediatric Urology 1000 years ago. In: Rickham PP, editor. *Progress in Pediatric Surgery*. Berlin, Heidelberg (DE): Springer-Verlag; 1986. p. 256-264.
18. Cumston CG. *Islamic Medicine*. In: Cumston CG, editor. An introduction to the history of medicine from the time of the pharaohs to the end of the XVIII century. London (UK): Kegan Paul, Trench, Trubner and Co. Ltd and New York: Alfred A. Knopf; 1926. p. 192.
19. DeBono DP, Boon NA. Diseases of the cardiovascular system. In: Edwards CRW, Bouchier IAD, editors. *Davidson's principles and practice of medicine*. 16th ed. Edinburgh: ELBS Churchill Livingstone; 1991. p. 306-308.
20. Abdel-Halim RE, Abdel-Maguid Thoraya E. The functional anatomy of the uretero-vesical junction: A historical review. *Saudi Med J* 2003; 24: 815-819.