

## ORIGINAL ARTICLE

### Al-Zahrawi, The First Physician who Described Dysmenorrhea

#### Abstract

Menstrual period is one of the girl's puberty stages, in which any change can expose a woman's sex life to natural fertility or infertility. Dysmenorrhea is a kind of pelvic pain that 50-90% of reproductive women experience during their lives. It is the greatest cause of lost working and school days among young women that decreases the quality of life. There is a great trend to use Traditional Medicine recommendations and prescriptions in the world. As a result, searching the literature and finding common points in Traditional Medicine and Gynecology is necessary. This way, opening up new avenues in the treatment and control of dysmenorrhea, possibly avoids wasting time and community's investment and enhances the quality of life of women.

While searching ancient PM texts during 9th -19th A.D., there are many overlapping conditions, which may mimic this disorder. There are not any particular terms and definitions for dysmenorrhea, while, it is mentioned in Persian Medicine literature under different names such as Oja-e Rahem (Uterus pain), Osr-o Tams (dysmenorrhea) and Oja-e Zahr (back pain).

There are many management lines for women in the TPM literature which have been of great interest to physicians throughout the history, but among menstrual changes, dysmenorrhea is not the earliest concern. First explanation of dysmenorrhea was found in the Al-Zahrawi's masterpiece of Al-tasrif in detail. It can be helpful to test these suggestions as ideas for clinical researches.

**Key words:** Menstruation, Dysmenorrhea, Al-Zahrawi

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## Introduction

Dysmenorrhea is derived from Greek words 'dys' meaning 'difficult, painful', 'meno' meaning 'month' and 'rrhoea' which means 'flow'. Therefore, the meaning of this word is 'painful monthly flow'<sup>1</sup>. The word of dysmenorrhea did not appear in English until about 1810<sup>2</sup>.

Dysmenorrhea is painful menstruation, which may be accompanied by low back pain (60%), headache (45%), nausea and vomiting (89%), diarrhea (60%) and fatigue (80%)<sup>3</sup>. There are two types of dysmenorrhea: primary and secondary. Primary dysmenorrhea is associated with ovulatory cycle without any macroscopic pelvic pathology that causes significant disruption in the quality of life among reproductive females. It affects their performances, social and sport activities. Dysmenorrhea is the most important reason for absenteeism in office hours. Secondary dysmenorrhea is based on pathology in genital system such as Endometriosis, Pelvic Inflammatory Disease, Congenital malformations of the mullerian system (bi-cornuate and septate uterus; transverse vaginal septum) and Cervical Strictures or Stenosis<sup>4,5</sup>.

Prevalence of primary dysmenorrhea is reported in many studies between 50-90%<sup>6</sup>. Affected women reflect a feeling of fear during inter menstrual phase that is an inconvenient sensation.

Many psychological theories have been advanced as the basis of primary dysmenorrhea in the past, but gradually researchers have found out that endocrine factors, prostaglandins and myometrial activities play more important roles<sup>7</sup>.

Most often dysmenorrhea is not acknowledged as a health problem which needs medical or nursing intervention. Some women believe that chemical drugs can cause infertility or make them prone to drug dependency<sup>8</sup>.

On the other hand, there is a trend to use herbal materials to manage such disorders all over the world. World Health Organization (WHO) estimates that up to 80% of the population in some developing countries use Traditional Medicine in their usual medications<sup>9</sup>.

Medicine was a central part of medieval Islamic culture. During the post-classical era (5th century to the 15th), TPM was the most prevalent paradigm of medicine in the world<sup>10</sup>. Persian Medicine is a medical school formed with a focus on the land of great Persia in geographical width of the borders of China to Andalusia and North Africa<sup>11</sup>.

The works of ancient Greek and Roman physicians Hippocrates (460-370 B.C.), Galen (131-201 A.D.) and Dioscorides (90 A.D. died) also had a lasting impact on PM, and it was made up of integrating the concepts of the ancient

- 1- Najmus Sehar et al., 2015
- 2- Smith, 2002: 71-79.
- 3- Yu-Min, 2012: 8 pages.
- 4- Yusoff, 2005: 285- 91.
- 5- Burnett, 2005: 765- 70.
- 6- Tyseer, 2013: 6 pages.
- 7- Dawood, 2006: 428- 41.
- 8- AbdE-Hameed, 2011: 216-33.
- 9- Zhang, 2001: 937-947.
- 10- Kordafshari, 2015: 57- 64.
- 11- Behmanesh, 2012: 157- 68.



Greek, Roman and Traditional Persian medical cultures. During the Caliphate (the political-religious Muslim state that began in 632 (C E), the bulk of Greek knowledge was translated into Arabic and some part of that composed the principles of medicine<sup>12</sup>.

This medical culture also called Unani, Greeco-Arab, Arabian, Iranian, Oriental and somehow Islamic Medicine<sup>13</sup> is based on humeral theory and individualized viewpoints<sup>14</sup> and got enriched by using what was the best in the contemporary systems of traditional medicines in Persia, Egypt, Syria, Iraq, India, China and other Middle East and Far East and also some European countries<sup>15</sup>.

Careful consideration of the manuscripts of Traditional Medicines may provide clues to new strategies for the prevention, treatment or control of many medical conditions in the world of modern technology. Furthermore, such studies can shed light on medical developments during history.

This study is a review of opinions about dysmenorrhea of PM main scholars in the early medieval period.

### Material and Methods

A systematic search in the eminent texts of TPM including: *Kitab al-hawi fi al-tibb* (Comprehensive Book on Medicine) authored by *Rhazes* (9th–10th century A.D.), *Kāmil al-Sinaā al Tibbiya* (Full medical industry) *al-Maliki of Ali ibn Abbas Majusi Ahvazi* (Holy Abbas 10th century), *Kitab al-Qanun fi al-Tibb* (Canon of Medicine) of *Avicenna* (10th–11th century), *Kitab Al-Tasrif* (The Method of Medicine) written by *Al-Zahrawi* (10th -11th century), *Zakhireye Kharazmshahi* (Hoard of Kharazmshah) and *Al-Aghraz al-Tebbieh va al-Mabahees al-Alayieh* (Study of Medicine and Therapeutic investigation) of *Ismaeil Jorjani* (11th -12th century), *Sharh-Al Asbab val Alamat* (Explanation of Reasons and signs) of *Najib-Al Din e Samarghandi* (12th century AD), *Al-Mujez fi Tib* (Summary of Medicine) of *Ibn-Nafis Ali Ibn e Hazam* (13th century AD), Explanations on *Avicenna's Canon of Medicine* (Gharshi, Nafisi, Aghsaraii (before 14th century AD), *Khazaen Al-Molook* (Royal Treasuries) of *Shams-al din Ahmad Tabib* (15th century AD death), *Kholasa-al Tajarob* (extract of Experiences) of *Baha-al dole Razi Kholasa-al Tajarob of Baha-al dole Razi* (15th -16th century AD), *Tibb akbari* (Medicine of Akbari) and *Mofarreh Al-Gholob* (Delight of Hearts) of *Hakim Akbar shah Arzani* (17th century AD), *Moalejat-e Aghili* (Treatments of Aghili) of *Aghili-e Khorasani* (17th -18th centuryAD), *Eksir-e-Azam* (Grand Elixir) of *Azam Khan* (18th-19th century AD), *Behjat- al-Roasa fi Amraz-e al-Nesa* (Heading of Cheerfulness in Gy-

12- Brill, 1970: 23- 47.

13- Tomczak, 2004: De Materia Medica HTML.

14- Zarshenas, 2013: 17- 26.

15- Heydari, 2016: 363-367.





necology) of *Al-Rashidi* (20th century AD) was conducted.

Dysmenorrhea was searched in the above manuscripts under the terms of “*Osr-o Tams*” (painful menstruation), *Oja-e Rahem* (pains of uterus), *Vaja e Zahr* (Low back pain), *Vaja e Tams* (painful menstruation), *Dard e Heiz* (painful menstruation) and *Ehtebas e Tams* (Amenorrhea).

These terms were mainly surveyed in the chapters of *Amraz-e Nesa* (Gynecological diseases), and *Oja e Mafasel* (bone and joint’s diseases) of the references.

The results were arranged according to scientist practice from 20th century turning back past era to find the first book whose author well described dysmenorrhea.

After finding the first description of dysmenorrhea in the PM textbooks, we searched in other Traditional paradigms to compare the results with our findings.

### Results

*Al-Rashidi* (20th Century) who studied in University of *Al-Zahra* and he is the author of *Behjat-o-Roasa fi Amraze Nesa* described dysmenorrhea in detail, and has mentioned it as “*Osr-o Tams*”<sup>16</sup>. He has classified it into two types including primary and dependent.

Primary is explained in puberty chapter. Dependent dysmenorrhea is discussed in menstrual disease chapter and consists of primary and secondary dysmenorrhea of current medicine.

*Hakim Azam khan* (18th -19th century) explained dysmenorrhea in *Exir-e Azam*: “*Some kind of uterus pain happens three or four days before menstrual bleeding and will be relieved by emmenagogue medicaments*”<sup>17</sup>.

*Akbar Arzani* (17th century A.D.) has mentioned dysmenorrhea in his book without any description: “*sometimes backache is present before and during the menstrual flow*”. Also in the chapter of postpartum pain, he advised the same medication for dysmenorrhea<sup>18</sup>.

*Shams-o Din Ahmad* (15th century) in his writing (*Khazaen Al-Molook*) mentioned that some women experience back pain two or three days before menstruation that is relieved by cupping in pre-umbilical area<sup>19</sup>.

*Baha-o Dine Razi* (15-16th century A.D.) in *Kholasa-Al Tajarob* wrote: “*The signs that indicate the onset of menstruation include: pain and heaviness sensation in uterus (because the nature of body is used to withdrawing blood), that are accompanied with pain in extremities, cervix dilatation and jerking sensation in vulva*”<sup>20</sup>.

*Al- Mujez fi Tib of Ibn- Nafis Ali Ibn e Hazam* (13th century A.D.) *Sharh-Al Asbab val Alamat of Najib-Al Din e Samar-*

16- Alrashidi, 2003: 380-386.

17- Chashti, 2007: 658-665.

18- Arzani, 2008: 955, 982.

19- Ahmad, 2005: 149-151.

20- Razi, 2003: 206.



*ghandi* (12th century A.D.) did not describe any related description about dysmenorrhea<sup>21, 22</sup>.

*Ismaeil Jorjani* (11th century A.D.) described normal menstruation period in the chapter of Gynecology in his book as “*monthly vaginal bleeding should be moderate in quality and frequency that can cause good health and chastity of women*”. Although Jorjani did not exactly mention dysmenorrhea, in the chapter of joints and bones diseases, he mentioned that “*Some kinds of back pain caused by uterus, and warm cupping in the umbilical area, especially in the beginning of menarche can relieve pain*”<sup>23</sup>.

*Al-Zahrawi* (11th century A.D.) in his book of *Al-Tasrif* described dysmenorrhea as a separate disease<sup>24</sup>. He described physiopathology of dysmenorrhea in 3 categories of vessels narrowing, blood hyper viscosity and tense swelling around the vessels of uterus. Based on these categories, he prescribed treatments.

*Holy Abbas* (10th century A.D.) described in his legendary text of *Kāmil al-Sinaā* that “*women who have scanty flow of menstrual bleeding, suffer from painful menstruation*”<sup>25</sup>.

According to the *Canon of Avicenna* (10th century A.D.), there is a kind of low back pain based on uterus disorders, which happens before menstruation period or in a kind of disease called “*Khafaghan-e Rahem*” (strangulation of uterus)<sup>26</sup>.

*Al-Havi* of *Rhazes* (9th century A.D.) in the mentioned chapters was searched using the keywords, but no detailed description about dysmenorrhea was found<sup>27</sup>.

Dysmenorrhea and amenorrhea were considered as abnormal conditions in ancient Greek texts. In the viewpoint of Hippocrates (5th century B.C.), dysmenorrhea occurs due to menstrual blood flow interruption because of cervical obstruction, which causes painful menstrual cycle but it does not depend on the quality of menstruation<sup>28</sup>.

According to this opinion, congenital stenosis might be a reason for difficult blood flow, therefore, these women were urged to marry and deliver a child as quickly as possible to get relief from menstrual pain<sup>29</sup>.

### Discussion

Although pain is one of the first human companions and man always tried to find relief and treatment for it during history<sup>30</sup>, brief mentioning and recommended treatments can be found in a variety of PM texts from the medieval period about this kind of pain: dysmenorrhea. Most scholars explained uterus pain generally without any relation to dysmenorrhea, and some of the references did not point out anything about it.

- 21- Mohammad Kamal, 2008.
- 22- Kermani, 2008: 245, 391, 429.
- 23- Jorjani, 2012: 900.
- 24- Zahravi, 2008:896-897.
- 25- Ahvazi, 2008: 169-171.
- 26- IbnSina, 2005:469, 470, 489.
- 27- Razi, 2000:134,137.
- 28- Moore, 1993.
- 29- Nezhat, 2012: 1-632.
- 30- Cooper, 2013: 214- 20.



Hippocratic brief treaties of Obstetrics and Gynecology were commonly referred to Muslim clinicians when discussing female diseases. Hippocratic authors associated women's general and reproductive health were believed no counterparts in the male body<sup>31</sup>.

It seems that the first physician who described physiopathology, etiology and treatment of dysmenorrhea precisely is *Al-Zahrawi*.

*Abu al-Qasim Khalaf ibn al-Abbas Al-Zahrawi* was born near Cordoba, Spain, when was part of the Islamic Empire.

*Al-Zahrawi* described dysmenorrhea as a symptom in women and believed that it is classified into 3 categories:

1- Vessels narrowing, that may lead to reduce uterine blood flow.

2- Blood hyper viscosity, due to viscous phlegm (Balgham) or black bile (Sauda).

3- Tense swelling occurrence around the vessels of uterus.

He stated treatment based on considered pathophysiologies in detail based on humeral theory and focusing on relieving the etiology.

It was not found any detailed description of dysmenorrhea before the time of *Al-Zahrawi*, by searching other cultures of Traditional Medicine in the world.

Among Traditional Medicines, it has been the first time mentioned in Chinese Medicine in "*The Complete Book of Effective Prescriptions for Diseases of Women*", in 1237 AD. (13th century A.D.). Physiopathology and significant advantages in treating dysmenorrhea with Traditional Chinese Medicine were stated in this book<sup>32</sup>.

Now, a question still remains unanswered:

As we know an important advance devoted to the knowledge of medicine by scientists and physicians long time ago<sup>33</sup> even in precise fields like ophthalmology<sup>34, 35</sup> and neurology<sup>36</sup>, glorious explanations and managements have been done. So, why some outstanding physician did not address dysmenorrheal.

It may have some responses:

1- Probably the rate of dysmenorrhea was lower than what we have nowadays due to:

1-1- Emphasis on lifestyle directions in health being (physical activity, sleeping on time, controlled and individualized diet, etc.).

1-2- Preventive instructions during menstrual period

1-3- most often multi-parity

1-4- prevalent Natural Vaginal Delivery

2- Male guardians such as fathers and husbands were not consent to their wives or daughters being examined by male

31- Gadelrab, 2011: 40-81.

32- FurenDaquanLiangfang, 1237: E book (chapter33-34).

33- Savage-Smith, 1995: 67- 110.

34- Pormann, 2007: 115-138.

35- Haddad, 1936: 1-8.

36- Zargar, 2015: 471-8.





practitioners unless absolutely necessary in life or death circumstances.

3- Women in the case of dysmenorrhea did not receive this symptom as a disease and were solely reliant upon advice given by other women.

4- Women with gynecological problems were referred to practical midwives that mostly they did not write down their experiences.

### Conclusion

Al-Zahrawi was the first scholar in medicine who described dysmenorrhea in detail. Maybe living conditions or menstruation principal observation, lifestyles and physical activity, multi-parity, in ancient time explain the low prevalence of dysmenorrhea. Therefore, physicians did not visit women with this complaint and did not write down in detail about it.

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## Al-Zahrawi Described Dysmenorrhea

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Vakil Mosque is a historical mosque in Shiraz. This mosque was built between 1751 and 1773, during the Zand period.

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