Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 8 Issue 2 February 2024

Review Article

Understanding the Unani Concept of Amrāḍ-i-shakl (Morphological Diseases): A Review

Mohd Salman[1], Tasfiya Hakeem Ansari[2]*, Aiman Shakeel Ansari[1], Umme Kulsoom[3] and Sana Kauser Ateeque Ahmed[4]

[1]PG Scholar, Department of Mahiyatul Amraz, National Institute of Unani Medicine, Bangalore, India

[2]Assistant Professor, Department of Mahiyatul Amraz, National Institute of Unani Medicine, Bangalore, India

[3]Lecturer, Department of Tahaffuzi Wa Samaji Tib, State Takmeel ut Tib College and Hospital, Lucknow, India

[4]Assistant Professor, Department of Mahiyatul Amraz, Al-Ameen Unani Medical College and Hospital, Malegaon, Maharashtra, India

***Corresponding Author:** Tasfiya Hakeem Ansari, Assistant Professor, Department of Mahiyatul Amraz (Pathology), National Institute of Unani Medicine, Bengaluru, India.

DOI: 10.31080/ASMS.2024.08.1748

Received: January 10, 2024

Published: February 01, 2024

Abstract

There are many people who suffers from some deformity. It may be congenital, developmental, or acquired. An estimated 6% of babies worldwide are born with a congenital disorder, resulting in hundreds of thousands of associated deaths. Globally, an estimated 8 million newborns are born with a birth defect every year. In the Unani system of medicine, various types of diseases are mentioned. Amrāḍ-i-shakl is a type of disease that covers diseases related to a change in the shape or form of the organs. Fasād-i-shakl is another term for deformity. Often Amrāḍ-i-shakl and Fasād-i-shakl are used interchangeably. However, both are not the same. This paper aims to describe the concept of Amrāḍ-i-shakl in USM and to differentiate the Amrāḍ-i-shakl from Fasād-i-shakl. Relevant literary material for this paper was collected from classical Unani literature, journals, theses, etc. The collected material was then analyzed and systemized comprehensively.

Keywords: Amrāḍ-I-Shakl; Fasād-I-Shakl; Deformity; Morphological Diseases

Introduction

Shakl or shape is defined as the form of an object which is enclosed by boundaries, angles, and surfaces [1]. An example of an object that is enclosed by a single boundary is a sphere, while objects that have many boundaries are triangles, squares, polygons, etc. [2-4]. There are a wide variety of living and non-living things on the planet that has definite shape and size. Their particular shape helps in their recognition as well as execution of their functions. As far as the human body is concerned it is composed of two types of organs: (a) a'ḍā'mutashābiha al ajzā (simple organs) and a'ḍā' murakkaba(compound organs). Simple organs are those in which the visible and perceptible parts carry the same name and definition as the whole organ e.g., flesh, nerve, bones, cartilages, tendons, arteries and veins, visceral layers, etc. These organs are also called homogenous organs as their tissue (particle) are of similar type [5,6]. Compound organs have a definite form or shape. They are composed of a'ḍā'mutashābiha al ajzā and are the tools

of the body functions [7]. They are enclosed by boundaries and surfaces. It is a well-known fact that an object's form is determined by the need or intended function. The same is true for compound organs.

Amrāḍ-i-shakl

Each compound organ is given a specific form or shape that is best suited to that organ's intended function [3]. Any change or alteration in the shape of organs from normal that results in abnormal functions are known as Amrāḍ-i-shakl [2,3,5]. e.g., curving of the straight organ or straightening of the curved organ as seen in inḥirāffāṣil al-mankharayn (DNS) [8], riyāḥ al-afrisa (kyphosis) [3], etc. Squaring of the rounded organ or rounding of the squared organ as seen in Taṣqeet-ur-Ra's (flattened head) i.e., the flattening of the anterior or posterior prominence of the skull, excessive roundness of stomach, loss of flatness in the pupil, etc. [7,9].

Some organs can alter their shapes when required as a physiological phenomenon. e.g., pregnant uterus (shape of the uterus changes from pyriform to globular shape at term [7,11]), full bladder (shape of urinary bladder changes from its normal tetrahedral shape to ovoid shape when it gets full) [12]. Since these changes are physiological, therefore, they are not included in amrāḍ-i-shakl.

Exceptions

As per the definition of disease, disturbance in functions is mandatory and includes decrease, loss, or change in functions [13]. but in case of amrāḍ-i-shakl, there are some exceptions. In some of the examples of amrāḍ-i-shakl it can be observed that mild change in the shape of those organs does not affect their functions. e.g., a mild form of DNS (deviated nasal septum) causes no symptoms [14]. Similarly positional plagiocephaly is a condition in which specific areas of an infant's head develop an abnormally flattened shape and appearance. This condition doesn't hurt the baby, and in most children, it goes away on its own when the child can sit and stand. If some flattening remains, it's usually minor. Thus, this condition doesn't cause alteration in functions [15]. They are categorized under amrāḍ-i-shakl even though they do not fulfill the criteria of being diseased i.e., change in function. Similarly, some of the examples of amrāḍ-i-shakl mentioned in the literature barely change any function except causing a reduction in cosmetic appeal.

Fasād-i-shakl and Amrāḍ-i-shakl

In classical literature, there is another term fasād-i- shakl which is often used interchangeably with amrāḍ-i-shakl. It seems that some of the physicians have used the term fasād-i- shakl in a broader sense as compared to amrāḍ-i-shakl. There are two terms deformity and malformation that are somewhat close to fasād-i-shakl and amrāḍ-i-shakl. Deformity is defined as a condition in which a part of the body is not in normal shape because of injury, illness, or because it has grown wrongly [16]. However, Malformation is a deformity in the shape or structure of a part, especially when congenital [17,18]. Deformity is a broader term as compared to malformation. Unlike malformation, deformity is not restricted to congenital origin.

General etiopathogenesis of Amrāḍ-i-shakl/Fasād-i-Shakl

The causes which produce deformities are known as mufsidāte shakl. These include: [7,13]

- Intrauterine or antenatal causes
- Perinatal or parturition-related causes
- Postnatal causes
- Other Causes

Intra uterine or antenatal causes: [3,19]

These types of causes are either related to the disturbance of quwā (faculty) or mādda (matter). Here quwā include Quwwat Mughayyira Ūlā (primary alterative/transformative faculty), Quwwat Muṣawwira (formative faculty), Quwwat Ghādhiya (nutritive faculty) or Quwwat Nāmiya (augmentative faculty) and mādda includes mani or madda-i-manwiyya (male and female reproductive/genetic material or cell) [13,20]. If there is a disturbance in Quwwat Mughayyira Ūlā, then this quwwat will not be able to do normal transformation or alteration in manī (here manī means a combination of both male and female mādda-i-manwiyya i.e., nuṭfa/zygote) in terms of mizāj (temperament). It means in this case Quwwat Mughayyira Ūlā does not introduce the appropriate mizāj into mādda-i-manwiyya whatever the particular organ deserves [20]. Therefore, improper alteration in nuṭfa results in structural deformity in an organ or its part. This pathological condition is similar to chromosomal defects e.g., Down syndrome, fragile ex syndrome, etc., in modern medicine [21]. Since Quwwat Muṣawwira (formative faculty) is responsible

for providing proper structure and shape to the organ according to their mizāj (temperament) whatever they are having or introduced by Quwwat Mughayyira Ūlā like hollowness, solidity, roundness, and flattening of organ, etc. [20]. According to modern physiology, the epiblast is developed and transformed into three basic germ layers in the embryo ectoderm, mesoderm, and endoderm. These layers form all tissues and organs which start from the third week and end in the eighth week of fetal development [22]. According to the Unani system of medicine this epiblastic development is brought about by Quwwat Muṣawwira (formative faculty). If this faculty is hampered or weak then it will not give proper shape and structure to the organ during the embryonic life [20] e.g., in normal conditions neural tube must be closed after a particular time but when the neural tube closer fails to occur in the cranial region, then most of the brain fails to form, and the defect is called Anencephaly. Contrary to this, if closure fails anywhere from the cervical region caudally, the defect is called Spina bifida [22].

Once organs are formed, Quwwat Nāmiya (augmentative faculty) causes the three-dimensional growth of the organ. Sometimes shape and structure of an organ are normal but due to disturbances of Augmentative faculty, its growth is abnormal e.g., congenital renal atrophy [23]. It is now proved that growth may also be affected by a nutritional deficiency of different minerals or vitamins. e.g., deficiency of magnesium, calcium, and phosphorus results in altered skeletal growth [24]. And severe deficiency of vitamin A leads to growth retardation [25] because Vitamins play significant roles in the growth of cells [26]. If Quwwat Ghādhiya (nutritive faculty) is weak or unable to absorb or retain/adhere these minerals or vitamins, skeletal as well as organ growth will be affected.

In the views of Ibn Hubal Baghdadi and Ibn al-Quff, the cause of malformation is related to the kamiyyāt (quantity) and kayfiyāt (quality) of māni i.e., genetic material [5,20]. Their opinion is validated by recent science that states the two types of abnormalities of chromosomes or genetic materials. One is quantative and the other is structural genome abnormalities or qualitative that is responsible for developmental deformities. These two types of genetic material anomalies contribute to 10% of major birth deformities. The human somatic cell contains 23 pairs of chromosomes (46 chromosomes) [22]. In case of quantitative disturbance in the genetic material or genome, either there is an increase or decrease in genetic material. If the genetic material is more than normal the primary alterative and formative faculties will not be able to introduce proper temperament and thereby the structure or shape in the genetic material to develop the organs, respectively [5,20]. Imbalance of translocation between two chromosomes may produce an extra copy of any chromosome as seen in Down syndrome (trisomy 21) which is characterized by a flat face, small ear, and epicanthic folds, etc. Other examples include Klinefelter syndrome (47 chromosomes) with the presentation of gynecomastia, testicular atrophy, hyalinization in seminiferous tubules, etc. Similarly, if genetic material is less in quantity, then the organ will not have its normal structure e.g., cleft palate, cleft lip, etc. Other than these deformities chances of missing or undeveloped limbs are there. In Turner's syndrome cells have 45 chromosomes and it is characterized by gonadal dysgenesis [22].

It is inferred that the above-mentioned genetic material-related problems have been discussed in the Unani system of medicine under the impaired functions of Quwwat Mughayyira Ūlā and Quwwat Muṣawwirah.

Ibn al Quff has described the impact of kayfiyāt (quality) of genetic material on the structural formation of an organ or its part. According to him, if the concentration of genetic material is more because of burūdat or yubūsat, the organ will not acquire the desired structure because the concentrated genetic material is unable to stretch in an accurate way to reach its normal shape. On the contrary, excessive ruṭūbat or riqqāṭ (moistness) in genetic material, results in its instability as well as a shorter stay in the uterine cavity, eventually leading to improper action of Quwwat Muṣawwira on it that causes the inappropriate structural formation of the organ [4,20,27]. The significance of kayfiyāt of genetic material can be understood as mitotic division. After the union of male and female gametes in the uterus, mitotic division occurs. In the prophase of mitotic division, the chromosomes begin to twist, contract, and compact leading to the shortening, condensing, and thickening of the genetic material. In metaphase, the chromosomes start separating and lining up in the equatorial plane of the cell [21]. Any disturbance in this phase leads to improper or no uncoiling and lining up of chromosomes causing inappropriate mitotic cell division. The changes occurring in the

above phases prove the concerns of Unani physicians regarding the condensation of genetic material due to coldness and dryness. An excess of coldness and dryness in genetic material as well as in the uterus increases the chances of the birth defect as this may hamper the uncoiling and lining up of genetic material.

Perinatal or parturition-related causes [3,13,19,28]

Normally, the position of a fetus is facing rearward (toward the woman's back) with the face and body angled to one side and the neck flexed, and presentation is the fetal head (occiput-anterior position). Abnormal presentations include the breech, face, brow, shoulder, footling, both knees, or compound [11]. Ibn al-Quff was of the view that deformity may occur if the presentation of the fetal part is other than the head [20]. Other deformities during the delivery process include birth traumas like fracture of the clavicle and femur, dislocation of the hip joint and Atlanta-occipital joint, facial nerve palsy, and palsies of brachial nerve plexus, etc [29]. However, some of these birth injuries may be cured.

S. No.	Birth Trauma	Causes
1.	Caput succedaneum	1. Prolonged or obstructed labour 2. Cephalopelvic disproportion
2.	Cephalohematoma	1. Instrumental delivery (forceps, ventouse)
3.	Facial palsy	1. Forceps delivery 2. Precipitate labour
4.	Brachial palsy 1) Erb's palsy 2) Klumpke's palsy	1. Shoulder dystocia 2. Malpresentation (Breech) 3. Foetal macrosomia
5.	Dislocation of joints (Shoulder, hip, jaw, cervical vertebrae)	1. Malpresentation (breech) 2. Shoulder dystocia
6.	Fracture of bones (Clavicle, humerus, femur, skull)	1. Forceps delivery 2. Breech delivery
7.	Sternomastoid hematoma (Transient torticollis)	1. Difficult breech delivery 2. Shoulder dystocia

Table 1: Birth trauma and its causes [11,31,32].

Postnatal causes

- Sometimes it is related to new-born handling or *Taqmeet* (swaddling). Sometimes, during swaddling, the new-born is not handled properly e.g., either the organ is pulled or compressed or gets twisted by the untrained nurse or new mother because of the softness of organs of the new-borns. It leads to irregular shaping of the organs in the new-born [9,13,19,27,32].
- Sometimes while making repetitive efforts for walking even before the limbs are hard enough and firm to bear the weight causes crooked legs in the child that ultimately leads to impaired gait [4,19,28].
- Over-breastfeeding of an infant leads to the production of an excess of cold and moist waste in his body that accumulates and eventually alters the shape of some organs [19,20].

Other causes

- Asbāb Bādiya (external causes), such as falling and blowing may lead to fracture, dislocation of the bone, or disruption of nerves, etc [3,9].
- Diseases like Judhām (leprosy), sill (phthisis), etc. result in the alteration of shapes of organs [13,27].

- Iatrogenic causes e.g., any fault made by the surgeon during surgical procedures that include improper traction, reduction, or fixation of the fractured bone [20].
- Bad healing of ulcers [13,19,27].
- Ibn Sina and Jurjani included amrāde miqdār i.e., undue obesity or excessive emaciation, amrāḍ-i-waḍ' e.g., shoulder dislocation as well as awrām as mufsidāte shakl [13,27].

Causes of Amrāḍ-i-shakl by Ibn rushd

He described two types of causes of Amrāḍ-i-shakl, one is natural and the other is external. Natural causes include inappropriate or inadequate matter that is not able to be acted upon by Quwwat Muṣawwira, or the tool through which Quwwat Muṣawwira accomplishes its action is not compatible. External causes cover the perinatal and post-natal causes that include birth traumas, the growth and development of child-related deformities, any fault made by the physicians or surgeons during the management of diseases, for example, improper bandaging of any organ in such a way that the organ becomes crooked. It is worth mentioning that he has not included amrāḍ-i-miqdār and amrāḍ-i-Adad under the causes of amrāḍ-i-shakl [33].

S. No.	Amrāḍ-i-shakl (Morphological Diseases)
1.	Ra's Musaqqat (Plagiocephaly)
2.	Ṣulb-i-Mashqūq (Spina bifida)
3.	Shatra Dākhiliyya (Entropion)
4.	Shatra Khārijiyya (Ectropion)
5.	Increased curvature of cornea because of excess ruṭūbat bayḍiyya
6.	Sha'r Munqalib (Trichiasis)
7.	Qaṣr al-Baṣar (Myopia)
8.	Ṭūl al-Baṣar (Hypermetropia)
9.	Inḥirāf fāṣil al-mankharayn (Deviated Nasal Septum)
10.	Anf Sarjī (Saddle Nose)
11.	Mustadīr-i-Mi'da (Excessive roundness of Stomach)
12.	I'wijāj al-Qaḍīb (Chordee)
13.	Riyāḥ al-Afrisa (Kyphosis)
14.	Abnormal curving of ribs
15.	Bowing of legs
16.	Ta'aqquf al-Aẓfār (Curving of the nails)

Table 2: List of Amrāḍ-i-shakl (Morphological Diseases) [13,19,28,35-37].

Discussion and Conclusion

A deformity is a condition in which a part of the body is not in normal shape because of injury, illness, or because it has grown wrongly [16]. It may be congenital, developmental, or acquired. It is inferred that deformity is fasād-i-shakl. And it is clear that amrāḍ-i-shakl and fasād-i-shakl are slightly different terms. The latter is broad and more inclusive than the former. Fasād-i-shakl means changes in form or shape of the organs be it in terms of size, position, etc. In other words, fasāde shakl is a broad term that includes deformity of all types including amrāḍ-i-Adad and amrāḍ-i-waḍ' too e.g., Mā'al-Ra's (Hydrocephalus), Siman Mufriṭ (Obesity), etc. are the diseases of amrāḍ-i-miqdār that are also listed as mufsidāt-i-shakl. Similarly, diseases of position such as Laqwa (facial paralysis), Khal' (bone dislocation), Fataq (Hernia), etc. are also listed as mufsidāt-i-shakl [9,13,27]. However, these two i.e., amrāḍ-i-Adad and amrāḍ-i-waḍ' are separate categories

under the classification of amrāḍ-i-tarkīb. Even though these diseases do alter the form or shape of the organs, but because of their separate categories these should not be placed under amrāḍ-i-shakl. For that reason, in the present work, only those diseases are kept in the category of amrāḍ-i-shakl (Table 2) in which their structural changes are not related to miqdār or waḍ', etc. Though, these diseases can be placed in both categories if fasād-i-shakl and amrāḍ-i-shakl are considered the same as done by some physicians. e.g., Shatra Khārijiyya (Ectropion), Shatra Dākhiliyya (Entropion), etc.. can be placed in the category of amrād-i- shakl and amrāḍ-i-waḍ' both. It is inferred that strict allocation of diseases in categories is difficult. Hence, physicians allocated such diseases in both categories. Moreover, this study also negates the notion that amrāḍ-i-khilqat are of congenital origin only. Since Amrāḍ-i-shakl is a part of amrāḍ-i-khilqat and there are several acquired causes that are mentioned in the etiopathogenesis of Amrāḍ-i-shakl. This study may provide a basis for the Classification of diseases like the classification of amrāḍ-i-khilqat etc. in future. It would also help in understanding the Unani perspective of organogenesis.

Acknowledgements

The author is thankful to all the co-authors of this article.

Financial Support and Sponsorship

Nill.

Conflict of Interest

There are no conflicts of interest.

Bibliography

1. Byju's. "Definition of Shapes". Byju's (2023).
2. Aqserai, J. "Tarjuma Aqserai mae Sharah-e-Mojaz". Munshi Naval Kishore, Lucknow (YNM).
3. Kabeeruddin H. "Kulliyat-e-Nafeesi". Idara Kitabul Shifa, New Delhi (1954).
4. Arzani MA. "Mufarreh-ul-Quloob". CCRUM (2010).
5. Baghdadi IH. "Kitab-Al-Mukhtarat Fit Tibb". CCRUM 4 (2004).
6. Shah MH. "The General Principal of Avicenna's Canon of Medicine". New Delhi: Idara Kitabus Shifa (2007).
7. Ibn Sina IA. "Al-Qanoon Fil-Tibb Book 1 (English Translation by Critical Arabic Text)". New Delhi: Dept. of Islamic Studies Jamia Hamdard (1983).
8. Anonymous. "Standard Unani Medical Terminology". CCRUM (2012).
9. Ibn Sina IA. "Kulliyat-e-Qanoon. (Kabiruddin M, trans)". New Delhi: Aijaz Publication House (2006).
10. Konar, H. "DC Dutta's Textbook of Gynaecology". 8th ed., Jaypee Brothers Medical Publisher (P) Ltd, New Delhi (2020).
11. Konar H. "DC Dutta's Textbook of Obstetrics". 8th ed., Jaypee Brothers Medical Publisher (P) Ltd, New Delhi (2015).
12. Chaurasia, B.D. "Human Anatomy". Vol. 2, 4th ed., CBS Publishers and Distributors, New Delhi (2004).
13. Ibn Sina IA. "Alqanoon Fit Tib. (Urdu Translation by Kantoori GH)". Idara Kitab-us-Shifa (2010).
14. Cleveland Clinic. "Deviated Nasal Septum". Cleveland Clinic (2023).
15. Jakob K and Hoerter JE. "Caput Succedaneum". StatPearls, StatPearls Publishing, Treasure Island (FL), (2022).
16. Collins. "Definition of Malformation". Collins Dictionary (2023).
17. Collins. "Definition of Malformation". Collins Dictionary, n.d.
18. Stamm H. "Deformity and Disability: A Graeco-Roman Perspective". The Proceedings of the 13th Annual History of Medicine Days, edited by Whitelaw WA, Health Sciences Centre, Calgary, (2004): 25-31.
19. Majoosi IA. "Kamilus-Sana'ah. (Kantoori GH, trans)". New Delhi: Idara Kitabus Shifa (2010).
20. Quff IA. "Kitab Al Umda Fil Jarahat". Vol-1. New Delhi: CCRUM (1986).
21. Mohan H. "Textbook of Pathology". 7th ed. New Delhi: Jaypee Brothers Medical Publishers (P) LTD (2015).

22. Sadler TW. "Medical Embryology". 12th ed., Lippincott Williams & Wilkins, Philadelphia (2012).

23. Kanimozhil S and Sathish R. "Unilateral Atrophy of Right Kidney – A Case Report". *International Journal of Current Research in Medical Science* 3 (2017): 86.

24. Golden MH. "The Role of Individual Nutrient Deficiencies in Growth Retardation of Children as Exemplified by Zinc and Protein". Vevey Raven Press Ltd, New York, (1988): 158.

25. Rivera JA., *et al*. "The Effect of Micronutrient Deficiencies on Child Growth: A Review of Results from Community-Based Supplementation Trials". *Journal of Nutrition* 133 (2003): 4015.

26. McArdle HJ and Ashworth CJ. "Micronutrients in Fetal Growth and Development". *British Medical Bulletin* 55 (1999): 500.

27. Jurjani I. Zakhirah Khawarzam Shahi. (Khan HH, trans). New Delhi: Idara Kitabus Shifa (2010).

28. Chughmani S. "Qanooncha". New Delhi: Faisal Brothers (2004).

29. Sabaratnam A., *et al*. "Essential of Obstetrics'. Jaypee Brothers Medical Publishers Ltd, (2004).

30. Cunningham FG., *et al*. "Williams Obstetrics". Jaypee Brothers Medical Publishers (P) Ltd, New Delhi (2004).

31. ArulKumaran, S., *et al*. "Essentials of Obstetrics". Jaypee Brothers Medical Publishers (P) Ltd, New Delhi (2004).

32. Chandpuri K. "Mojizul Qanoon". 3rd ed. New Delhi: Qaumi Council Barai Farogh Urdu Zuban Publication (1998).

33. Ibn Rushd AW. "Kitab-ul-Kulliyat. (Central Council for Research in Unani Medicine, trans.)". New Delhi: CCRUM (1987).

34. Khan MA. "Ikseer Azam. (Kabiruddin M, trans)". New Delhi: Idara Kitabus Shifa (2011).

35. Khare C.P. "Indian Medicinal Plant". Verlag-Berlin: Springer (2007).

36. Baghdadi IH. "Kitab-ul-Mukhtarat fil Tibb. (Central Council for Research in Unani Medicine, trans)". New Delhi: CCRUM 4 (2005).