



## Al-Zahrawi and the Dacryocystorhinostomy

**Mohamed Y. Zakkour**

Otorhinolaryngologist, Head & Neck Surgery, The Syrian association of History of sciences, Idlib, Syria

Email: yzakkour@scs-net.org

### INTRODUCTION

Surgery has been proceeded so much during the Arab Muslim's civilization, especially after the innovation of the anesthetic sponge, which contains opium, bang... etc.

Accordingly many famous surgeons were operating in every hospital (Beemarstan) the surgeon was called (Jaraihi) or (Sahib Al- Jirahat) i.e. Ali B Abbas, Ibn Al- Qiff, and others.

Abu-I-Qasim Khalaf B Abbas Al- Ansary Al-Zahrawi, the most famous surgeon in the Arab and Muslims civilization, he was born in Al-Zahra' near Qurtova, in the period of Khalifa Abdul-Rahman III, and lived between (325 hijra/936 A.C - 404/1013).

Alzahrawi composed the famous book "Al-Tasreef Li-Man Ajeza an Al-Ta'leef" which means; "The compendium for those who cannot manage to write their own books".

This book (encyclopedia) contains 30 volumes, each volume called "Maqala (treatise) 1,2,3...etc.

The last volume (Maqala 30) is specialized for surgery which was called (Hand- work or Manual of Medical Art) entitled in Arabic "Al-Zahrawi Fi- Ttib Li-Amal Al-jarraheen", i.e (Al-Zahrawi on Manual Medicine For Surgeons), for all the body, which I realized and edited in 2009.

For the very importance of this book it has been translated to many languages, and printed several times in Venice and other European capitals since 1471 A.C.

It was the first scientific methodological book for surgery in which Al-Zahrawi explained the technique of all the operations in the human body, clarified by drawings the instruments used.

For that Abu-I- Qasim Alzahrawi is considered the greatest surgeon in the Arab Muslim's civilization and in the medieval, his book was the unique reference to the whole European books in surgery i.e. Roje, Galium, and Guy De Chauliac (1298- 1368 A.C) Al- Zahrawi is mentioned more than 200 times in his book "The Grand Surgery".

The book "Al-Zahrawi..." consists of 3 entries; the first is specialized for the cauterization (in 56 chapters), the second for surgery (in 100 chapters), and the third is for bone setting (in 35 chapters).

In this article I will speak about one of the numerous operations which Al- Zahrawi had innovated and described in his book; this operation is now called "Dacryocystorhinostomy".

The indications of this operation, the technique which Abu-I- Qasim Al- Zahrawi innovated and the instrument used in the operation will be discussed.

### PATIENTS AND METHODS

"Al- Gharb" is a disease had been described by the ancient physicians that it is a fistula in the medial canthus, mostly after an abscess rupture of the lachrymal sac, became a fistula which may penetrate externally or inside the nose, and sometimes distributes to the surrounding bone and

affect the eyelids, the pus appears and extrudes by finger's pressure on it.

In the second entry- chapter 19<sup>th</sup> Al-Zahrawi spoke about the operation "Dacryocystorhinostomy" which he called "Radd Ar-Risha Ila-I-Anf "i.e. "rejoining the fistulous to the nose", this operation was performed in case of chronic Dacryocystitis, Dacryocoele, Dacryoabscess, and Dacryosyrinx or fistula which is called "Al-Gharb".

**Al- Zahrawi said in definition of Ar- Risha (Feather):**

"It must be well known that every wound or infection if became chronic and ulcerated and not healed and was discharging pus permanently without cessation, generally speaking is called fistula, in any organ it was."

But Al- Zahrawi called the fistula snivel (Zokam), which he said: "We call it Zokam", i.e. it resembles the nasal discharge during sinusitis or rhinitis.

Then he defined the reason of nomenclature Ar- Risha in his statement: "The fistula is a solid flocculated white painless nodular cavity looks like the bird's leather, for that some called it "Risha" (Feather). Sometimes it is moist, produces purulent discharge permanently, may ceases sometimes, also this discharge may be plenty or little, thick or thin. "

**Management of Dacryosyrinx (Fistula- Risha):**

Al- Zahrawi spoke about three ways for this case treatment:

- 1- **Conservative medical treatment:** by using the medicaments in that period, then if did not respond moved to the cauterization, or by surgical treatment.
- 2- **Cauterization:** Either by caustic drugs, or diathermy with special cauteries heated on fire, or as the ancient physicians were doing before Islam by using the fused lead in a small funnel located just over the lesion.
- 3- **Surgical treatment:** also Alzahrawi described two kinds of operations:
  - A- He dealt with disease as any abscess, so he said: "If you treat the fistula (Ar- Risha) by the causative drugs or by diathermy but it is not cured, so there is no way for that except the incision on the abscess when becomes ripe; that you evacuate all the discharge and pus of it till the bone appears, and if the bone appeared and you see in it blackness or putrefactions so you must rasp it by an instrument- as this drawing:



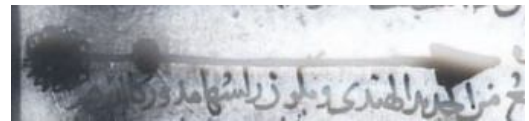
From manuscript (alsulaymania – Istanbul 502).



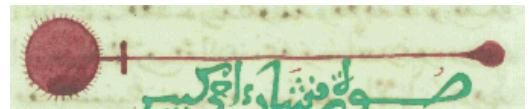
From manuscript (khudabakhsh – India 2146).



From manuscript (Berlin – Germany 6254).



From manuscript (bodlien - oxford 634).



From manuscript (Al- Hasania – Rabat 134).

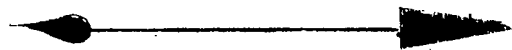
which is called (The Rough Head) made of Indian iron, it's is rounded as the button engraved as the rasp or the (Iskelphage)<sup>a</sup> in a fine engraving, put it on the putrefied region of the bone, then you turn it between your fingers, while you are constricting it, slowly till you know that the putrefaction has been rasped, repeat that several times, then set the region by the drying constrictive drugs."

Al-Zahrawi emphasizes that the result of this operation must be without recurrence in 40 days to decide the curing, otherwise the last operation (D.C.R) must be done, in which he says:

- B- "If the region is healed completely and the purulent discharge stopped for forty days and did not relapse, and no swelling or any other symptom, so you will be sure that it is cured. Otherwise there is no expedience either the anastomosis by piercing the nose with this technique i.e. to open on the bone once more by instruments or caustic drug, if the bone exposed use a perforator as this drawings:

<sup>a</sup> Iskelphage: the first instrument with a name in Arabic meaning a rough head. (Spink & Lewis).

## Al-Zahrawi and the Dacryocystorhinostomy



**Istanbul**



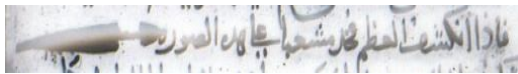
**India**



**Rabat**



**Berlin**



**Oxford**

The instrument is of triangular end and the column is conically slided to the end as you see, put it on the bone itself, and that should be near to the canthus, and your hand far of the eye slightly, then you turn your hand with the perforator until it penetrates the bone and the patient feels that the air diffuses from it when he holds his nose by hand, after this you have to set the region with constrictive drying drugs, as I taught you. So if the tissue grows up and the sclerosis occurred in the region; this means that the purulent discharge which was coming outsidess is come back to the nose, and that will be more relief to the patient, if God will"

### DISCUSSION

There is no doubt that Abul-Qasim Al-Zahrawi is considered the pioneer who established the surgical technology on a scientific basics, he described and innovated many operations and instrumentations and described many surgical diseases.

As we saw in the above article Alzahrawi innovated the operation called recently Dacryocystorhinostomy; which he called Rad Ar-Risha Ila-Al Anf i.e. anastomosis of lachrymal sac abscess or fistula (Al-Gharb) to the nose.

He started firstly by conservative medical treatments, as most of the ophthalmologist does in the modern medicine. Then if there is no response he moves to the manual treatment either by cauterization; by caustic materials, or cauteries heated on fire, or the incision on the abscess and rasping by a rasp called Iskelphage, (Spink & Lewis commented on this instrument: the first instrument with a name in Arabic meaning a rough head).<sup>(12)</sup> This operation looks like the operation was done formerly in modern medicine by extracting the lachrymal sac, but here Al-Zahrawi added the rasping; curettage.

In the end, and if the former management did not relieve the patient, he shifts to the operation which he innovated for more than on thousand year, he described the surgical technique in details, and called it (Rad- Ar- Risha Ila- Al- Anf). But as we saw Al-Zahrawi did not suture the incision, he left it to be healed spontaneously.

This operation is still done in the modern medicine either by classical surgery; (D.C.R) by using the electrical perforator or by the most modern (Endoscopic D.C.R).

### CONCLUSION

This was one of the so many innovations of the Arab and Muslims in which they offered to the humanity during several centuries, which appears obviously the rule of them, not to be obscured or neglected or forgotten by others, also these innovations prove that the Arab and Muslims were not only transmitters or translators to the ancient sciences.

In this article I emphasize that we do our duty in exposing the rule of the Arab Islamic physicians in the world civilization, not just to be proud of them.

### REFERENCES

- Alqosony, Madyan. Qamous Al- Atibba wa Namous Al- Alibba v1 p 50.
- Spink & Lewis. Albucasis on surgery and instruments, preface. & p 243.
- Zakkour M Yaser. Alzahrawi fi- Tibb li amal Al- jarraheen, p 106,503,249.