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HISTORY OF OPHTHALMOLOGY IN MEXICO

Pre-Columbian ophthalmological knowledge in Mexico

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For many, many years, humans have practiced what is now called ophthalmology all over our planet to correct the diseases that have bothered them.

We have information about pre-Columbian medicine thanks to the codices handed down by the ancient settlers of our country, as well as the chronicles from the conquistadors, both military and spiritual.

In one of the establishments founded in Mexico City by the Franciscans, Santa Cruz de Tlatelolco, a text was written that, although done using the European model, had served to study pre-Columbian medicine. I refer to the *Codex Barberini* or *Codex Badiano*.

Other works which teach us about our topic are the *Relaciones Geográficas*, which have provided a lot of data to many researchers.

As regards religion, inseparable from medicine at that time, I should note that the Aztecs had the goddess Tzapotlānen, as well as others under her aegis. The deity who corresponded to both eye and skin diseases was Xipe, which means bald or blackened. Xipe was feared above all, since he affected those who were not afraid of him or did not worship him, causing bloating, boils, scabies and eye diseases.

The Aztecs called the eyes *ixtelotli*, the ciliary body *tixquatol*, the eyebrows *ixquaitl*, the eyelids *ixquatolli*, the eyelashes *tocochia*, the conjunctiva *tixtocatzauallo*, the iris *toilticauli*, the pupil *toteouli* and the tear ducts *tixcuilchi*.¹

It is thought that they knew the eye anatomy through the human sacrifices that they constantly and ritually practiced, giving them the opportunity to obtain such knowledge.

Some eye diseases known by the ancient Mexicans have been mentioned, generally called *ixcocoliztil*: diseases of the cornea, conjunctiva and lens, dacryocystitis, lacrimal fistulas, eye pain, blepharitis, chalazion, and they spoke of dark circles around the eyes, which they named *ixtecocoyouiliztli*.²

Patients with strabismus were called *ixnecuiltic*.

Eye surgeons were known as *teixpati*.

The blind were called *ixpopoyotli*, but they distinguished between the different aetiologies of blindness: if it was caused by a strong light; if foreign bodies, such as dirt, fell into the eye; if by herbs; if it was due to lemon juice; if it was due to a purulent ophthalmia; if due to leukoma, or if it was due to a cataract.²

The drugs that were used to combat eye diseases were called *ixpatli*.

Conjunctivitis was treated using a wide variety of eye drops: one was made with *tlacopatli* root, another with *iztacquahuitl* root, which was lightly smeared over the conjunctiva. There were also eye drops made of *coatli* rubber, black cherry bark and *tlatlancapatli* root. They also used *pulque*, *tzicalotl* sap mixed with the milk from a mother who had given birth, *cozticpatli* root, *tlalhuehuexotl* root, *yzocuilpatli* shoots, *ixpatli* (eye medicine) shoots, the milky sap from *chapiztli*, a maceration of *costicpatli* root, water distilled from *chicomecatl* flowers, and juice from young *mizquitl* leaves and stems, with sugar or powdered brown sugar. To treat phlogosis, they applied *iztecahtixmixitl* poultices over the eyes.²

Granulomatous conjunctivitis was treated by scraping the palpebral conjunctiva with a rough herb, *cacamalinalli*, and then washed with *pulque*, in order to remove the fleshy parts.

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Ophthalmias were called *ixtemaliniliztli* or *ixcapachiui*, when they presented granulations. The treatment varied, and consisted of using powders, such as *coatli* rubber, or eye drops such as a maceration of the *cozticpatli* root or *tzicalotl* juice. They sought to destroy the granulations with the *ixpatli* root, with powder from the *michcuitlaxcolli* leaves and root or with *cicimatic* juice.

According to Sahagún, pterygium, or “eye web”, was cured by “trying to cut the web, lifting it with a thorn”, and once removed, they put *chichicaquil* juice drops into the sick eye.²⁻⁴

Keratitis was treated using *azcatzontecomatl* or *tlatlayotli* juice drops, and when there was a vascular or pannus component, *tuzpatli* root was used².

Powder from *yyauhtli* or burnt *ulli* flowers was used for leukoma, as well as drops made from a *cozticpatli* root maceration, resinous *chapiztli* juice or *tzicalotl* dissolved in water and then mixed with juice from young *mizquitl* branches. As a last resort they rubbed the spot with *ayauhpatli* fruits.^{2,5}

Myopia was diagnosed and short-sighted people were called *amoixtlapaltic*.

Dacryocystitis and lacrimal fistulas were combated by smearing *tomatl* (tomato) pulp, still commonly used in Mexico for these problems.

There was also a group of eye diseases that seem to be what today are called amblyopia and amaurosis, for which they had a series of remedies, such as ground *ololihqui* seeds taken with milk and chilli smeared onto the head and forehead. The ill were cared for away from light, the sun, the wind, and the cold.²

The Aztecs also used spells and prayers for healing.

Spells are a genre of discourse in which it is assumed that the one who says the spell and the one to whom it is directed have forces that are more or less balanced.⁵

Conversely, prayers are understood to be the product of recognising the action of higher forces in the process—in this case pathological—that you want to treat and then humans are placed as inferior and unable to act of their own volition. They are subject to the desire of the deity or powerful spirit that has made them sick, and a beseeching tone is directed towards them. There are means of intervention by a priest and community prayer.⁵

As an example of the above, for eye diseases the following spell was spoken:

Spell said to the patient who has painful and bloodshot eyes:

Come you, nebulous herb

Come receive the powder of the earth;

Come clean what has been harmed,

Our enchanted mirror.

Come you to us

Our uncles, the priests,

those of the five destinies, the brothers and sisters.

Accompany the nebulous herb.

Come you, white woman,

Come you to clean

*Our enchanted mirror.*⁵

In 1629, Hernando Ruiz de Alarcón published his *Tratado de las supersticiones y costumbres gentílicas que hoy viven en-*

tre los indios naturales desta Nueva España [Treatise on the Heathen Superstitions That Today Live Among the Indians Native to This New Spain], in which he described the superstitious cure for the eyes:

*For afflicted and painful eyes they commonly used cold water together with exorcism and superstition of the spell, which was used by, among others, by María Salomé, wife of Gaspar Rodríguez, of the village of Tetelpan, in the jurisdiction of Cuernavaca, and it says: “I ask you, one snake (to the veins), two snakes, three, four snakes, why are you mistreating thus the enchanted mirror (the eyes) and its enchanted surface or complexion. Go where you will. Leave for wherever you like. And if you do not obey me, I shall call the one of the skirts and huipil of precious stones, for she will scatter you and turn you aside. She will throw you, scattering you. And she will leave you scattered throughout those deserts.”*¹⁶

Having said this incantation, she throws the cold water in his eyes, and since those who suffer usually have their eyes on fire, they feel relief owing to the cold of the water but attribute the effect to the false spell - [being] brutish and without understanding of the mercifulnesses of the Lord.

It also relates other methods for healing the eyes:

*They also used another method of curing with its exorcism and spell. Among others, Marta Mónica, an inhabitant of Tetelzinco, a barrio of Ohuapan, was a master of this second method. They used the sap of the bark of the tree called mesquite, which is harsh. When the bark of the tree is struck, the sap comes out. They collect this with the head of a pin or something similar, and they rub the patient’s eye with it until it bleeds, while saying this incantation (sic): “I, the offerer of sacrifices and the price of spell, have brought you, head of pearl (pin or index finger). Go seek the green, or dusky, or yellow pain, you the one with the head of pearl, seek and find out which God or which powerful one now wishes to destroy my conjured mirror (the eyes). Also do your duty, you conjured medicine, green medicine.”*⁶

*After rubbing the eyes with the sap, while saying the foregoing incantation, she then turns to the piciete or textiete and says: “Come here you, the nine-times beaten one. Come here, conjured medicine. Let us find out who is the God, or who is the powerful one who wishes now to destroy our enchanted mirror.”*¹⁶

*Saying this incantation, she anoints the eyelids and parts of the forehead above the patients’ eyebrows [sic], and then she throws into the eyes the blood from the quills of chicken feathers which have just been pulled out, which is like-wise a tested medicine for afflicted and bloodshot eyes.*⁶

On the other hand, according to Krickeberg,⁷ the Aztecs practiced bleeding, especially for headaches, and when they thought there were tumours in the knees, dislocations, cramps, and for some vision disturbances.

We have already mentioned the use of mesquite in eye diseases above. Miguel del Barco (1706-1790), a Jesuit mis-

sionary, recounts that in Sonora and California this plant was also used:

*Having pounded the small, tender buds of this sweet mesquite, and squeezing their juice into the eyes, it is a good remedy against disease in those same eyes, as frequently suffered in California.*⁸

Lastly, the study of pre-Columbian practice of what today is called ophthalmology remains open to the multiple studies that have yet to be conducted.

References

1. López Austin A. Cuerpo humano e ideología. Las concepciones de los antiguos nahuas. Vol. I. México: Universidad Nacional Autónoma de México; 1980. p. 112.
2. Flores y Troncoso F. Historia de la medicina en México. Tomo I. México: Instituto Mexicano del Seguro Social. México; 1982. p. 108-11.
3. De la Cruz M. Libelus de Medicinalibus Indorum Herbis. México: Instituto Mexicano del Seguro Social; 1964.
4. Sahagún FB. Historia general de las cosas de la Nueva España. 8.ª ed. México: Editorial Porrúa, S.A.; 1992. p. 587.
5. Viesca Treviño C. Medicina prehispánica de México. México: Editorial Panorama; 1986. p. 190-6.
6. Benítez F, Ponce de León P, Sánchez de Aguilar P. El alma encantada: Anales del Museo Nacional de México. México: Instituto Nacional Indigenista/Fondo de Cultura Económica; 1987. p. 201-2.
7. Krickeberg W. Las antiguas culturas mexicanas. México: Fondo de Cultura Económica; 1961. p. 177.
8. Del Barco M. Historia natural y crónica de la antigua California. México: Universidad Nacional Autónoma de México; 1988. p. 64.