Effects of sexuality on female eye: a review

P.A. GALLI

SUMMARY: Effects of sexuality on female eye: a review.

Female steroid hormones determine continuous gynaecological modifications from birth to senescence through puberty, pregnancy and menopause, and grant to the eye ophthalmological, psychological and sexual valences that assimilate the visual apparatus to a gender organ. In spite of this, the aim is only to report the main effects of sexuality on the female visual apparatus.

The hedonistic stimuli do in different ways on male-female eyes as well as the sexuality produces primary physio-pathologic and secondary pathologic effects on the female visual apparatus.

Within the limits of sexology, little girls before puberty experiment with spontaneous proto-orgasm: the eyes with an upturned focus point out this phenomenon. In adult women sexually significant stimuli cause midriasis, an involuntary sign of female orgasm. During the excitation phase, women tend to open their eyes and look at the partner as a mechanism to reinforce the emotional bond. Therefore relationship exists between sexual pleasure and female eyes, identified with the neologism “pupil-clitoris reflex”. Since the Renaissance up to a recent past, women have utilized belladonna to cause midriasis which signifies attraction, transmits availability and provokes interest in the interlocutor.

Cases of sudden mono-lateral visual distortions, decrease, and loss associated with sexual activity with quick and excellent prognosis have been reported. Cases of blurred vision happening during sexual arousal associated with narrow angle glaucoma may disclose a previously unknown narrow angle glaucoma. Testosterone and the association testosterone-estradiol, given to post-menopausal women to improve libido, may cause central retinal venous thrombosis. Some sexually transmitted infections (STI), such as syphilis, gonorrhea, chlamydia, aids, herpes simplex, papilloma, molluscum contagiosum and phthirus pubis, have a higher probability in women to be responsible of primary or secondary involvement of the visual apparatus.

Non insiders must not be astonished to accept that either “normal” or “unusual” or even “censurable” sexual practices may be the involuntary cause of both physiologic and pathologic ocular involvement.

KEY WORDS: Sex and female eye.
Sesso e occhio femminile.
**Introduction**

The visual apparatus is assimilable to a gender organ (1, 2). Estrogens and progesterone receptors are present in all of the ocular structures. Therefore male and female sex hormones and agonist and antagonist drugs influence ocular physiology and the incidence and prognosis of several ocular diseases, therefore differentiating male and female eyes (1, 3).

The continuous gynaecological modifications in females from birth to puberty and from fertile life (including pregnancy and puerperium) to menopause and then senescence, grant to the eye ophthalmological clinical, psychological and sexual valences that differ from males (3).

Few reports, sporadically published in Psychology and Clinical Sexology journals, rarely in Ophthalmology journals and never in Gynaecological journals, point out that sexuality produces primary physiopathologic and secondary pathologic effects on the female visual apparatus.

**Generalities**

The eye reacts to hedonistic stimuli in different ways, depending on age. It is common observation that children open their eyes wide and broaden the pupil in the presence of toys, as well as adults attracted to something astonishing and gratifying (1).

Little girls before puberty, more frequently than boys, experiment with spontaneous proto-orgasm, evoked by simple body positions, important for sensorial focalization of their own genitals. It is the eyes with an upturned focus that point out this phenomenon (4).

Since the Renaissance up to a recent past, women of high census utilized Belladonna (Atropa Belladonna, a perennial herbaceous plant belonging to the Solanaceae family) to cause midriasis. A dilated pupil signifies attraction, transmits availability and provokes interest in the interlocutor (5). Furthermore Belladonna makes the eyes appear bigger, more beautiful and luminous, in spite of the side effects assimilated to a poisonus plant.

**Primary physiologic effects**

During the peri-ovulatory phase of the menstrual cycle, women become more attractive, with consequent increase in sexual activity (4, 6, 7). The gaze, due to its chromatism and intensity, seems to help. Loving eyes are unique and indescribable, like the emotion they provoke.

Sexually significant stimuli increase pupil diameter more likely during the peri-ovulatory versus the luteal and menstrual phase of the cycle, or in women using oral contraceptives (8). Apart from pupil diameter, it seems that interest to visual sexual stimuli varies depending on the phase of the cycle the women is in. The women first tested in peri-ovulatory phase show major interest also during the other phases if compared to women first tested during the luteal phase. Oral contraceptive users reveal a progressive increasing interest if first tested during menstruation (9).

The number of fixations on the body has the same significant increase in males and females in case of erotic versus non erotic body images (10).

The vision of explicit sexual images inspires women with normal cycles to look prevalently and for a longer time at the genitals, than hormonal contraceptive users who have a higher probability to look at the general context (11).

In the case of auditory neutral, violent or erotic stimuli, the continuous monitoring of pupil diameter has shown a greater pupil diameter in case of erotic auditory stimuli in both male and females, but a shorter period in men with a low production of testosterone (12).

The olfactory organ has lost much of its importance in humans. The existence of pheromones, difficult to isolate and produced by the genital, axillary, peri-nipple and scalp areas, are under discussion. It is possible that women have stopped producing pheromones during ovulation, or that men have lost the capacity to become aware of them, or both. Nonetheless, several data suggest that smell carries chemical signals influencing the mood, the menstrual cycles, and partner selection, and has complex consequences on human sexual behavior as much as a seductive glance. Nevertheless, there are no studies correlating olfactory stimuli to the visual apparatus and sex.

Within the limits of sexology, during the appetitive phase, the exciting stimuli are mostly visual in men and various and balanced in women. In the excitation phase, men alternate palpebral closing and opening, whereas women tend to open their eyes and look at the partner as a mechanism to reinforce the emotional bond.

In general, excluding personal variability induced during the ages by culture and different superstructures, the female orgasm reveals genital and extra-genital symptoms and signs. Among the extra-genital symptoms and signs is midriasis (13). The modification of pupil diameter shows an emotional mood associated with an increased activity of the sympathetic system so that as opposed to other extra genital symptoms and signs, midriasis is impossible to simulate (14). Therefore, a tight involuntary relationship exists between sexual pleasure and female eyes, already identified with
Effects of sexuality on female eye: a review

The neologism “pupil-clitoris reflex” (1). Images of naked bodies increase pupil diameter to a greater degree if preceded by neutral images. The pupil response neutralizes following a progressive habit (15). Pupil dilatation following erotic images is ascribed in both sexes a value in terms of sexual trend. Heterosexual women manifest midriasis of the heterosexual type differently than that of bisexual men who manifest midriasis of both hetero/homosexual type (16).

In regards to fixations, utilized to measure the attention to erotic videos, both men and women look a longer time at the female genitals with similar attention if the images are sufficiently explicit (17).

Primary pathologic effects

Cases of sudden mono-lateral visual distortions, decrease, and loss associated with sexual activity with quick and excellent prognosis have been reported. A hypo-perfusion or ischemia of retinal and/or optic nerve secondary to occlusive arterial diseases (athero-thrombosis, embolism, rupture), heart diseases, small arterial vasculopathies, ischemic neuropathy, hyper-coagulopathies, blood hyper-viscosity or hemoglobinopathies, systemic hypo-perfusion is hypothesized as the cause. In some cases, the decreased vision is secondary to rupture of retinal blood vessels in the macular region, to the vitreous bleeding from an induced retinal tear, and to the dislocation of internal ocular lens. In these cases, a good visual recovery is difficult and may require more time (18-21).

Cases of blurred vision happening during sexual arousal associated with narrow angle glaucoma (22) may disclose a previously unknown narrow angle glaucoma.

Secondary effects

Testosterone and the association Testosterone-Estradiol, given to post menopausal women to improve libido, may cause central retinal venous thrombosis (23) between 16 days and 11 months from beginning of therapy.

The Sexually Transmitted Diseases (STD) are venereal bacterial, viral, parasitic, protozoal diseases with a significant probability of involving the visual apparatus (24-26). The STD considered to be responsible for ocular involvement are: Syphilis, Gonorrhea, Chlamydia, AIDS, Herpes Simplex, Papilloma, Phthiriasis, Molluscum Contagiosum and Phthirius Pubis (27).

Ocular venereal infection can be primary (direct) as in the case of Chlamydia and Gonorrhea, or secondary (indirect) to immunodeficiency as in the case of AIDS. The ocular involvement can be primitively recognized by the Ophthalmologist who should then refer the patient to the Gynaecologist, Dermatologist or Infectologist for an adequate therapy and follow up.

Syphilis (bacterial, spirochaete, treponema Pallidum) with an incubation between 3-90 days and direct ocular transmission may appear primarily as an ocular manifestation with mono-bilateral papillitis, papilledema, chorioretinitis, retinitis, pre-retinal opacities, posterior acute placid uveitis, pan-uveitis with macular edema, episcleritis, anterior optic neuritis, retro-bulbar neuritis (28-33). The ocular involvement is more frequent in secondary and tertiary syphils with granulomatous and non-granulomatous iridocyclitis, pan-uveitis, posterior uveitis and kerato-uveitis (34). With proper diagnosis and prompt treatment the majority of ocular syphils can be cured.

Gonorrhea (bacterial, diplococcus Gram-negative, Neisseria Gonorrhea) with an incubation between 2-30 days and direct ocular transmission, appears as an uncomplicated unilateral or bilateral purulent conjunctivitis and as a hemorrhagic conjunctivitis (35, 36). Gonocccal conjunctivitis is a diagnostic and therapeutic emergency being a potentially blinding STD. The ocular involvement, rare in developed countries, is rapidly rising in parallel with recrudescence of genital gonorrhea.

Chlamydia (bacterial, Gram-negative, Chlamydia Trachomatis) with incubation of 2-6 weeks and direct ocular transmission, appears with symptoms of acute or chronic follicular conjunctivitis, pathological secretions or increased lacrimation, cutting, burning and foreign body sensation in the eye, and with signs of mild edema of bulbar conjunctiva and meandering irregular caliber of vessels (37, 38). Chlamydia eye infections are thought to result from autoinoculation by the patient of infected genital secretions from themselves and/or their partners (39) but may also begin as primary, sole infection following direct ejaculation into the eye (40). Two-thirds of the women affected by ocular chlamydia have a genital chlamydial or other infection and the majority of them has no genital symptoms (41). Tracoma, the most common cause of blindness, is not strictly correlated to sexual behavior.

AIDS (viral, lentivirus member of the retrovirus family, Human Immuno-deficiency Virus) is transmitted by unsafe sex, contaminated needles, breast milk and mother-fetal transmission at birth with time of incubation between 2 and 3 months. The ocular involvement is direct, correlated to various etiologic agents and involve eyes in about 75% of AIDS affected patients (42). The retina and the uvea are commonly involved in acute retinal necrosis and anterior uveitis (27, 43). The cytomegalovirus can bring rapid blindness. Herpesvirus, Toxoplasma and Candida may involve the eyes in different ways. Kaposi sarcoma may involve the eyelid as a hard effortless violet nodule and...
the conjunctiva as a vivid red fleshly bulk. In terminal AIDS the brain is often involved by HIV or other opportunistic infections: because about 50% of the human brain is used for vision, the eyes may show signs of cerebral involvement by blurred glazed vision, ocular impaired movements and diplopia.

Herpes (viral, DNA virus, Herpes Simplex 1-2) is transmitted through sexual contact, direct contact with fluid of an infected individual and skin-to-skin contact during asymptomatic shedding, and incubation of 1-26 days. At direct ocular transmission, it appears with palpebral vesicles and scabs and kerato-conjunctivitis (44).

Papilloma (viral, DNA virus, Human Papilloma Virus) is transmitted with sexual contact and incubation of various months to years. With direct ocular transmission it appears as a conjunctival condylomata acuminata similar to ano-genital manifestations (45).

Phthiariasis (nebulous etiology, likely referable to two Herpes virus HHV6 and HHV7) coopted to STD (26, 46) is a dermatosis characterized by erythematous-desquamating lesions with a benign auto-limiting course. It rarely appears on the eyelids and on the periocular skin and as a chronic itching conjunctivitis and hyperemia.

Cases of blefaroconjunctivitis with the identification of the Phthirius Pubis (crab louse) are described (47-49) and the ectoparasite is considered a marker of sexually transmitted diseases.

Rare cases of ocular Molluscum contagiosum are reported in literature (42, 50).

One case is reported (51) of ocular and urethral abnormal secretions associated with genital and oral ulcers which can be attributed to Streptococcus Agalactiae acquired through sexual contact. In spite of this circumstance, this oculopathy and this etiologic agent are not imputable to STD as well as Hepatitis B (HBV) and C (HVC) (27).

Conclusions

The estrogen and progesterone receptors present in all the ocular structures make a difference from male eye: they influence female ocular physiology, grant ophthalmological, psychological and sexual valences and differentiate the incidence and prognosis of several ocular diseases from men.

The eye is often the host of lesions which may manifest as the first sign (direct or indirect) of various diseases not easily recognizable because above suspicion (Leishmaniasis) (52) or because of unavowed sexual practices (STD).

Non insiders must not be astonished to know that certain “normal” or “unusual” or “censured” sexual practices (“Naturalia non sunt turpia”) may be the involuntary cause of physiologic and pathologic ocular involvement.

Disclosure

The author has no conflicts of interest to declare.

References

14. Bradley M, Miccoli L, Esrig MA, Lang PJ. The pupil as a measure of emotional arousal and autonomic activation. Psy...
Effects of sexuality on female eye: a review

15. Garrett JC, Harrison DW, Kelly PL. Pulpometric assessment of
arousal to sexual stimuli: novelty effects or preference? Arch
16. Rieger G, Savin-Williams RC. The eyes have it: sex and sexual
orientation differences in pupil dilation patterns. PLoS
17. Tsujimura A, Miyagawa Y, Takada S, Tatsuoka Y, Tajkao T,
Hirai T, Matsushita M, Nonomura N, Okuyama A. Sex dif-
ferences in visual attention to sexuality explicit videos: a pre-
10.1111/j.1743-6109.2008.001031.x
18. Evans RW, Moore KL. Expert opinion: sexual intercourse fol-
lowed by headache and transient monocular visual loss. Head-
19. Friberg TR, Braunstein RA, Bressler NM. Sudden visual loss
113:738-742.
20. Kofoid PK, Milea D, Larsen M. Transient monocular blindness
2009;93:1199.
21. Markovits AS. Sudden visual loss associated with sexual ac-
22. Friedberg DN, Fox LE. Blurred vision during sexual arousal
23. Glueck CJ, Bowe D, Valdez A, Wang P. Thrombosis in th-
ree postmenopausal women receiving testosterone therapy for
24. Deschenes J, Seamone C, Baines M. The ocular manifesta-
25. Lim LT, Nasoodi A, Al-Ani A, Dinsmore WW. An eye on sexual-
ly transmitted diseases: sexually transmitted diseases and their
26. Abu Samra K, Azzouni F. The eye in sexually transmitted
infections: a review of the ocular complications of venereal di-
28. Eandi CM, Neri P, Adelman RA, Yannuzzi LA, Cunningham
ET, International Syphilis Study Group. Acute syphilitic po-
terior placoid chorioretinitis: report of a case series and com-
prehensive review of the literature. Retina. 2012;32(9):1915-
41.
29. Porstmann AU, Marcus U, Pleyer U. Primary diagnosis of
syphilis by the ophthalmologist. Klin Monbl Augenheilkd.
30. Puech C, Gennai S, Pavese P, Pelloux I, Maurin M, Roman-
net JP, Chiquet C. Ocular manifestations of syphilis: recent
cases over a 2.5-year period. Graefes Arch Clin Expo Oph-
31. Turchetti P, Pacella F, Pacella E, Mirisola C, Ucella I. An im-
munocompetent migrant presenting with neurosyphilis with
32. B’chir Hamzaoui S, Znagui Z, Farah H, Bouslama K, Ben Dri-
di M. A case of papillitis revealing primary syphilis. Med Mal
513-8.
34. Chiquet C, Khayi H, Puech C, Tonini M, Pavese P, Aptel F,
35. Biance-Valero E, Quiniou PY, Valero B, Novarrot JC, Souli-
é B. Gonococcal conjunctivitis in a young women. J Fr Oph-
36. Buchta RM. Hemorrhagic Nisseria gonorrhoeae conjunctivi-
Etiology of acute conjunctivitis due to coxsackievirus A24 va-
riant, human adenovirus, herpes simplex virus, and Chlamydia
38. Krasyny J, Borovanska J, Hruba D. Chlamydia pneumoniae:
the etiologic agent of follicular conjunctivitis followed by Ke-
ratocconjunctivitis sicca in adult patients. Cesk Slov Oftalmol.
39. Stenberg H, Mardh PA. Genital infections with chlamydia
trachomatis in patients with chlamydial conjunctivitides:
40. Rackstraw S, Viswalingam ND, Goh BT. Can chlamydial
conjunctivitides result from direct ejaculation into the eye? Int
J STD AIDS. 2006;17(9):639-41.
41. Postema EJ, Remeijer L, van der Meijden WI. Epidemiology
of genital chlamydial infections in patients with chlamydial conjunctivitides; a retrospective study. Genitourin Med.
42. Osadebe LU, Li Y, Damon IK, Reynolds MG, Muyombwe A,
Gappy C. Ocular molluscum contagiosum atypical clinical
43. Verma S, Herghes JD, Moby D, Graham EM. Symptomatic
anterior uveitis in HIV-positive patients. Int J STD AIDS.
44. Carlesimo M, Narcisi A. Dermatopatie e Cosmesi Oculare.
In: Galli PA e Dorigo MT: L’Occhio in Ostetricia e Gine-
45. Luorino J, Truskinskaya A, Chung G, Krachmer J, Bawcom-
be D, Huang A. Conjunctival condylomata acuminata.
46. Pinho Paes Barreto R, Biancardi AL, Salgueiro MJ. Chronic
conjunctivitis related to Phthirus pubis. Int Ophthamol.
47. Kiran B, Kareem SA, Illamani V, Chitralekha S. Case of Phthi-
rus pubis: a trap for the unwary. Int J STD AIDS. 2010;21(7):519-
20.
48. Skinner CJ, Viswalingam ND, Goh BT. Phthirus pubis in-