

STUDY ON SOME OF THE UNAESTHETIC ASPECTS OF THE TEGUMENT IN THE AGING PROCESS - WRINKLES

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Abstract

Different aspects and clinical modifications of the tegument were analyzed in the present work, using specific techniques for examining the wrinkles. The first wrinkles that appear are the frontal ones. Very rare in case of people younger than 30 years old, they begin being delineated towards and after 30. Next appear the periorbital, the nasogenian, the mentolabial wrinkles and the wrinkles formed in the genian area. In case of women, wrinkles locate and accentuate more quickly than in case of men, while the latter have a thicker, more hydrated, greasier and more flexible tegument and the hormonal impregnation with androgens is 10 times bigger than in case of women. Wrinkles accentuate, get deeper in time, so, after 70 years old, more exactly around 80, all types of wrinkles become profound, due to old age, real lines, crinkles that unaesthetically modify the face.

Key words: aging, wrinkles, tegument

INTRODUCTION

Aging is a physiologic and irreversible phenomenon of the organism and, along this process, the tegument is considered one of the most precise indicators, due to its constant, progressive and complex modifications that take place at this level (Fossel M. 2002). Skin is also the organ that indicates the state of health and sickness of the organism, but also the progressive aging signs. In the present study we presented different aspects and clinical modifications (but also histological) of the old persons' tegument.

MATERIAL AND METHOD

A series of clinical and histological investigations was made. One of the most visible and precise clinical indicators of dermal aging degree are the wrinkles and this is the reason why this clinical parameter was profoundly studied.

The selection of the studied subjects was very well structured, covering a different spectrum of the subjects, differentiated according to sex and origin environment, respectively urban or rural.

For monitoring the evolution and establishing the clinical aging sings of the tegument, in order to make a comparative study and to observe, as accurate as possible, the evolution of these modifications, we studied 215 persons, both men and women, with ages between 10 and 91 years old, that were divided according to age (table 1).

In this context we monitored a series of clinical parameters: skin fineness, flexibility, adherence to profound plans, turgor or the skin hydration degree, tonus, sanguine irrigation, function of the sebaceous and perspiratory glands, the presence of wrinkles, dermal sensitivity.

Table 1

Regarding the distribution of the examined subjects according to age groups, origin environment and sex

<i>No.</i>	<i>Age group</i>	<i>No. of subjects</i>	<i>Origin environment</i>		<i>Feminine sex</i>	<i>Masculine sex</i>
			Urban	Rural		
<i>1</i>	10-20	29	15	14	14	15
<i>2</i>	21-30	25	13	12	13	12
<i>3</i>	31-40	30	14	16	17	13
<i>4</i>	41-50	22	12	10	12	10
<i>5</i>	51-60	30	14	16	18	12
<i>6</i>	61-70	33	16	17	18	15
<i>7</i>	71 and more	46	20	26	24	22
Total		215	104	111	116	99

Examination technique of wrinkles

Wrinkles appear like some fine parallel lines that typically disappear when the skin is stretched. Because skin does not get old in the same manner in all the parts of the body, the examination was especially based on the study of the wrinkles from the area exposed to environmental factors, face and hands (Bhawan J., et al, 1995). These are the most representative areas and the areas most affected by the aging process. The used examination technique was the clinical examination of the tegument of face and hands, more precisely their dorsal face. These were examined according to their emergence order, using the visual clinical examination and the eyeglass. They were examined in the following order:

- horizontal and vertical wrinkles at the forehead level
- wrinkles in the periorbital region, from the outside angle of the eye, named “crow’s feet”
- nasolabial wrinkles, starting from the nose towards the commissure of the lips, also called nasogenian
- eyelid wrinkles, the upper and the inferior eyelid
- vertical wrinkles of the upper lip
- mentolabial wrinkles that go down from the commissure of the lips to the menton
- wrinkles of the genian area that are the last to appear and furrow the face with lines that intersect themselves, forming a real network of more or less deep ditches.

The examination was made in a natural light, while the person was sitting. For the clinical evaluation and the evaluation of the severity level of the wrinkles from the mentioned integumental regions a standard gradation scale based on the aspect and the pregnancy of the wrinkles was used. This

examination methodology has a certain level of self-partiality because it also depends on the personal subjective opinion of the doctor that examined the person.

RESULTS AND DISSCUSIONS

During the study we identified and examined the face wrinkles according to: emergence order, area and profundity. For a detailed evaluation, keeping the order of their chronological emergence, there were identified the following types of wrinkles: frontal, “crow’s feet”, nasolabial, wrinkles of the inferior eyelid, mentolabial, upper lip, genian region.

Regarding the profundity of the wrinkles, we divided them into: superficial, medium, profound/deep wrinkles.

Table 2

Percentage distribution of frontal wrinkles according to age groups and sex

<i>Presence of (%) the frontal wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
23.07	41.17	7.69	5.88			31-40
50.0	50.0	50.0	41.66			41-50
16.66	33.33	33.33	44.44	33.33	11.11	51-60
13.33	44.44	46.66	22.22	40.0	27.77	61-70
	8.33	40.90	33.33	59.09	58.33	> 71

Table 3

Percentage distribution of the “crow’s feet” wrinkles according to age groups and sex

<i>Presence of (%) the “crow’s feet” wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
46.15	29.41	7.69	29.41			31-40
40.0	8.33	60.0	66.66			41-50
8.33	11.11	41.66	44.44	50.0	33.33	51-60
20.0	11.11	40.0	38.88	40.0	44.44	61-70
4.55	8.08	36.36	25.0	59.09	66.66	> 71

Table 4

Percentage distribution of the nasolabial wrinkles according to age groups and sex

<i>Presence of (%) the nasolabial wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
15.38	29.41	15.38	23.52			31-40
40.0	41.66	50.0	33.33			41-50
16.66	16.66	58.33	38.88	8.33	38.88	51-60
	22.22	60.0	33.33	33.33	38.88	61-70
		31.81	33.34	68.18	66.66	> 71

Table 5

Percentage distribution of the inferior eyelid wrinkles according to age groups and sex

<i>Presence of (%) the inferior eyelid wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
	29.41					31-40
40.0	41.66	10.0				41-50
33.33	22.22	33.33	44.44			51-60
26.66	33.33	33.33	44.44	13.33	11.11	61-70
31.81	12.50	50.0	50.0	18.18	37.50	> 71

Table 6

Percentage distribution of the mentolabial wrinkles according to age groups and sex

<i>Presence of (%) the mentolabial wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
						31-40
10.0	33.33					41-50
41.66	33.33		22.22			51-60
33.33	27.77	13.33	44.44		22.22	61-70
18.18		54.54	50.0	27.27	50.0	> 71

Table 7

Percentage distribution of the upper lip wrinkles according to age groups and sex

<i>Presence of (%) the upper lip wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
						31-40
	8.33					41-50
	33.33		16.16			51-60
20.0	33.33	13.33	22.22		5.55	61-70
59.09	25.0	13.63	41.66	13.63	33.34	> 71

Table 8

Percentage distribution of the genian region wrinkles according to age groups and sex

<i>Presence of (%) the genian region wrinkles</i>						
<i>Superficial</i>		Medium		Profound		Age groups (years)
<i>Masculine</i>	Feminine	Masculine	Feminine	Masculine	Feminine	
						31-40
						41-50
8.33	16.66		16.66			51-60
6.66	22.22		22.22			61-70
18.18	25.0	9.09	20.83	13.63	37.50	> 71

Wrinkles are one of the most representative parameters of the tegument aging process and the visible clinical sign that can express the best the skin aging level and does not always regard the chronological age.

In our study we identified the face and hands wrinkles; the face wrinkles were identified according to their emergence order, area and profundity and, according to their depth, we classified them in superficial, medium depth and profound or deep. So, the first that appear are the frontal ones, very rare in case of young people up to 30 years old, these being contoured around and after 30 years old. Their appearance around the age of

30 comes to confirm the data from the literature regarding the aging process. In case of persons between 31 and 40 years old the frontal wrinkles are 36,66% superficial. We notice here differences between sexes, in case of men these appear in a percentage of 23,07% and in case of women we have a greater number, 41,17%. Between 41-50 years the presence of this type of wrinkles is greater, the superficial wrinkles being met in case of 50% of the subjects, there existing equality between sexes.

Between 51-60 the number of subjects with superficial frontal wrinkles decreases and the number of those with medium profound wrinkles increases up to 33,33% in case of men and 44,44% in case of women. The deep ones are more frequent among masculine subjects, namely 33,33%, while the profound wrinkles in case of women represent a percentage of only 11,11%. These differences persist also in case of the group age 61-70 years old, where the percentage of men with deep frontal wrinkles is 40%. While frontal wrinkles appear first, along time, these become deeper and deeper, appear like some longitudinal ditches that furrow the forehead exactly like the wrinkle positioned in the area between the eyebrows, called the "V" of the forehead (Garcia P., et al, 2005). Our researches indicate that in case of men, compared to women from the same age decade, wrinkles are more persistent and get deeper quicker. Ana Aslan quoted by Eugenia Bărbat mentioned that, even though men's skin is more resistant they confront themselves with unaesthetic aspects of the skin and especially the frontal wrinkles that appear and accentuate quicker than in case of women. Being expression wrinkles, the facial muscles contract more frequent due to a more often frown in case of men compared with women.

At an older age of over 70 one may notice that the presence of the profound frontal wrinkles is almost equal in case of both women and men, namely 54,04% from the studied men and 58,33% among the women, while the superficial wrinkles hardly exist. Examining the subjects over 70 years old, the frontal wrinkles are present in each case.

The "crow's feet" wrinkles are the next that appear and are located at the level of the external angle of the eyes. The study indicates that these are not present before the age of 28-29. These wrinkles are more often in case of men and belong to the expression wrinkles category, as other data from the literature indicate (Besne I et al, 2002). The situation changes in case of the subjects with ages between 61 and 70, when the percentage values of the results are more equilibrated between the two sexes. Over 71 years old the wrinkles are very deep in case of 63,04% of the subjects and more numerous in case of the feminine subjects, namely 66,66%, while the masculine subjects show a percentage of 59,06%. At this age, more than a half of the subjects has deep wrinkles, real ditches dug in the tegument.

The nasolabial wrinkles are chronologically next and enter the expression wrinkles category (Hashizume H., et al, 2004). They are located in the area that starts from the level of the nasal orifices to the commissures of the lips, are very numerous and appear earlier in case of persons with a very expressive mimic. These are rare before 30. Over 50, they are emphasized and become deep, profound in case of 23,60% of the subjects. Here are also differences between sexes and these are present in a percentage of 38,88% in case of women and only 8,33% in case of men. In case of the age group between 61-70, the nasolabial wrinkles are 36,10% present, close values existing between the 2 sexes. Only 33,33% of the women subjects present superficial nasolabial wrinkles, the explanation being that because of the cosmetic treatments these types of wrinkles are more attenuated and less profound. After 71 years old this type of wrinkles is accentuated, they appear like some deep lines, like two parentheses that start from the nose towards the commissures of the mouth and are profound in case of 67,12% of the subjects of the group over 70 years old.

The inferior eyelid wrinkles also appear after the age of 30. They result mainly from the modifications of the mimic, in the orbicular area that is very expressive and these are more frequent until a certain age stage in case of men. The presence of this type of wrinkles helps you better notice the skin differences between sexes, woman's tegument being thinner than men's, and, especially around the eyes, the tegument is thinner in comparison with other body regions. This is also an area that is not protected by clothes being directly exposed to the action of the environmental factors and gets wrinkled easier and quicker.

Later on appear the mentolabial wrinkles. From our research results that they begin to appear around 40-50, so, at this age, they are only contoured, very superficial in case of 22,72% of the subjects, most frequent in case of women = 33,33% and 10% in case of men.

Our results come to confirm that wrinkles locate and accentuate quicker in case of women in comparison to men, the later having a thicker tegument, more hydrated, greasier and flexible and the hormonal impregnation with androgen being 10 times bigger than in case of women.

The studies made by Pierre Fabre laboratories in Paris show that the intrinsic epidermal aging comes much later and is much slower in case of men in comparison to women (Bonta M., et al, 2004). Women's tegument is thinner, the hormonal impregnation is lower and once with the menopause the estrogen level is reduced, particularly the most active and circulating form, the oestradiol, and this make aging install earlier and evolve progress rapidly. The decrease of hormones is correlated with the chronological aging. Our results are asserted by the data in literature, so the age group 61-70 from the number of persons examined have this type of wrinkles, but

these are superficial in case of 30,30% of the subjects and deep in case of 12,12%. While the profound wrinkles were not installed in case of men, they are present in case of women in the ratio of 22,22%. In case of the subjects over 70, the mentolabial wrinkles intensify, regarding not only their frequency but also their depth, sometimes real ditches that bind the commissures of the lips with the menton being observed. Women are the most affected ones, the profound mentolabial wrinkles being present at 50% of the women and only 27,27% of the men.

The radial wrinkles at the level of the upper lip appear later from a chronological point of view, are lined after 40 like some fine lines, this aspect being met at only 8,33% of the women under 40 years old that represents only 5,54% of the entire number of subjects. They also appeared in case of men only between 61-70. The wrinkles from the genian region, namely those at the cheek level, are chronological the last to appear and are not present in case of young people. Our clinical observations reveal the fact that this type of wrinkles appears only after 50 and is more pregnant at women. Between 51-60 the wrinkles from the genian region are present at 13,33% of the total number of subjects. Over 71 the genian wrinkles are much more numerous and the number of subjects that have this type of wrinkles is bigger. The profound wrinkles are met at 26,08% subjects, they appear like real ditches dug in the tegument that furrow the cheek forming a real network that intersects. We noticed that the persons that have profound wrinkles have them also in the menton area, the menton being also furrowed by more or less profound lines. The differences between sexes persist and this type of wrinkles is not so often in case of men. One may state that the genian wrinkles and the wrinkles in the menton area are the last to appear, their presence emphasizing an advanced level of dermal aging.

We may say that the first wrinkles are the expression ones, caused by the frequent modifications of the mimic, by the contractions of the facial muscles. Our study reveals that these are more frequent in case of men up to a certain age, because in case of them the modifications of the facial mimic are more frequent. Another explanation would be the fact that women take care of their face skin from an early age using dermal-cosmetic treatments, thing that postpones the emergence of this type of wrinkles compared to men (Frances C., et al, 1991). Even though there is not a strong connection between the chronological age and their emergence, in time, a certain order in the emergence of wrinkles is still noticed, as it also results from our study, without a dependence on the atrophy of the tegument.

Along with the progression of the senescence process, the wrinkles caused by the dermal atrophy appear and the study reveals that they appear after 40 and are caused by "the skin lowering", namely its relaxation. These are fine wrinkles and appear like some multiple fine lines, like the irregular

highlighted crinkles in proportion to the skin surface, as the wrinkles of the eyelids and the radial ones of the upper lip are. The aging process involves an important skin relaxation in this area, this being so great because it is not sustained by adipose tissue. The sensitivity of the skin in the oral orifice area is accentuated by the continuous movement of the lips.

The skin in the periocular area is thinner and more fragile, has a transparent aspect and is furrowed by many small capillaries that vascularize the eyeball. At menopause the skin and face aspect is modified as an effect of the hormonal changes due to the diminution of estrogens. The features become thicker and accentuated, the muscles lose their tonus “lowering” and becoming thinner in the central part of the cheek. The “lowered” wrinkles are a result of the dermal extent, pressure and atrophy and are confounded with the corresponding crinkles. These are “collapsing” wrinkles and this forming mechanism accentuates the wrinkles of the eyelids, especially those of the cheeks, neck and menton. The profound wrinkles are also called aging wrinkles that appear like some deep furrows, real ditches at the face level. All wrinkles accentuate, get deeper in time, so, after 70, and more exactly around 80, all the above mentioned wrinkle types become profound, aging wrinkles, real ditches that unaesthetically modify the face.

CONCLUSIONS

The organism aging phenomenon is a complex and irreversible physiological process that concerns all the organs and tissues. The most relevant criteria, from a clinical point of view, and the most frequent morphological indicator when evaluating the aging degree is the epidermal organ. Skin represents the most precise indicator of the organism aging and person's age. The dermal modifications during the senescence process take place progressively and constantly. The men's skin particularities related to the hormonal impregnation with androgens makes the intrinsic aging take place slower and later compared to women, especially after menopause appears. The flexibility diminution, the muscles tonicity decrease and the decrease of the skin adherence lead to wrinkles formation, the most representative clinical signs that accompany the dermal senescence. Once the aging process advances the number and profundity of the wrinkles increases progressively.

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