Malignant Tumors of the Skin Among Leprosy Patients

Jorge Michalany

The concept that leprosy is rarely associated with cancer prevailed until 1937 to such an extent that it was believed that persons with leprosy were immune to malignant tumors. This point of view was due principally to the conclusions of Soegaard (17), who, in 1910, analyzed the deaths caused by cancer in leprosaria.

Impressed by the fact that in the United States Levin (28) had not found a single case of cancer among leprosy patients, Soegaard (17), suggesting the possibility of immunity to cancer in persons with this disease, decided to investigate the facts in Norwegian leprosaria. Among 2,226 deaths, he found only 19 cases of cancer, i.e., 0.84 per cent. In view of these results and in the light of the opinion that cancer was rare among persons with leprosy, stressed by directors of various sanatoria outside Norway, including Bjarnhedinsson (1) of Reykjavik, Soegaard held no further doubts about his views as to the relative immunity of leprosy to malignant tumors (18, 19). His reports had wide repercussion and in 1911 an editorial was published in the Press Medecine (20) in which the limited susceptibility of patients with leprosy to cancer was pointed out, and evidence was made to the opinions of Hansen and Neelen, who stated that they had never seen a case of cancer among leprosy patients. Even in the Far East, Toymura (21) appeared to confirm the rarity of leprosy-cancer association.

However by 1912 Lie (22) held doubts regarding Soegaard’s conclusions, and in 1914 Bichler (2), from Riga, submitted statistics showing 10 cases of cancer from 100 autopsies on persons with leprosy (6.3%). He concluded that the mortality rate due to cancer in the leprosarium was equal to that in the non-leprosy Riga Municipal Hospital (5.2%), and that his findings did not permit him to accept an immunity or even a lesser degree of predisposition to cancer among persons with leprosy.

Despite such objections, statistics were later published in which the incidence of cancer among leprosy patients continued to be very low (Pineda (24)), or null (Businco (2)). The latter author, however, held doubts regarding the alleged resistance of leprosy patients to malignant tumors and recalled that an apparent incompatibility between malignant tumors and tuberculosis had also been claimed. Contrary to Businco, two Japanese authors, Sugai and Monobe (25), in view of the fact that few lepra cells had been found in the organs of a tuberculous leprosy patient, who died of carcinoma of the pylorus, suggested that the Hansen bacilli might have been affected or destroyed by substances produced by cancer cells. Hopkins (26), in the United States, was likewise of the opinion that the condition of leprosy improved as cancer progressed.

In published papers Kobayashi (27), Terra (28) and Portugal (29) still insisted upon the rarity of the cancer-leprosy association, but in 1930 two Argentine authors, Puente and Quiroga (30), again expressed doubt about this rarity, despite the low percentage (0.56%) found in their own material. In a four-year period, among 700 leprosy patients, only four were found with carcinoma, two of the skin, one of the breast and one of the gallbladder. In the U.S.S.R., Stein and Karpitchina (31) continued to insist on the low incidence of cancer in persons with leprosy: among 133
autopsies there was only one case of cancer.

In contrast to the view of an antagonism between cancer and leprosy, there arose, in the 1930s, a belief that leprosy could favor the development of malignant tumors. Although Tissier (24) affirmed that leprosy might prepare a favorable soil for cancer, he gave no reasons for such a statement. Natali (34), after analyzing 22 cases he collected from the literature, which led to conclusions contrary to the supposed immunity of the leprosy patient to cancer, suggested that leprous lesions of the skin and perhaps of the viscera might constitute a starting point for carcinoma.

Finally, in 1937, two Brazilian authors, Martins de Castro and Martins de Castro Jr. (29) submitted the highest series of cases to date on the leprosy-cancer association. Forty-four cases were reported, of which 35 were of the skin, 10 of mucus membranes and 9 of other organs, all proved by biopsy or autopsy, and all noted within the short period of three years in the Department of Prophylaxis of Leprosy of the State of São Paulo (Brazil). They concluded not only that cancer was not rare in leprosy patients, but also that there was no reason to believe in an incompatibility of the two diseases or in a slender susceptibility of a leprous patient to cancer.

Despite such an influential publication, in 1941, Serra (40) in Italy, continued to refer to a rarity of neoplasms in leprosy, declaring that he had never found any cases among his leprosy patients. Hayashi and Fukuda (11) suggested that cancer in leprosy was rare because the average age at death among leprosy patients, especially those of the lepromatous type, is earlier than the cancer age among persons free from leprosy. However, in 1938, the findings of Calfas (4) and of Kosslopkheva and Savcenich (28) confirmed those of the two Brazilian authors. Calfas (4) from the Department of Prophylaxis of Leprosy of the State of São Paulo, reported, in a three-year period, 160 cases of leprosy patients with malignant tumors, 110 (68.75%) of whom were living and 50 (31.25%) dead. Kosslopkheva and Savcenich (28), reporting from Astrakhan in Soviet Russia, after analyzing 499 autopsies of leprosy patients, found 38 cases of malignant tumor (7.6%). They attributed this high incidence to modern therapeutic results, resulting in greater longevity among leprosy patients. More recently, in 1964, Sakurai et al. (40) found 14.2 per cent with cancer in 115 autopsies in cases of leprosy.

ANALYSIS OF LITERATURE ON THE ASSOCIATION OF LEPROSY AND MALIGNANT TUMORS OF THE SKIN

The first case that we were able to find in the literature in which an association of leprosy and skin cancer was noted, was demonstrated by Blaschko (4) in 1897, during a conference on leprosy in Berlin. The case was a carcinoid tumor of the lower lip, associated with leprosy infiltration and presence of leprosy bacilli.

Not until 1910 were additional cases of skin cancer in leprosy patients noted in the literature, and then, by coincidence, in the very works of Søegaard, the author who had insistently proclaimed the immunity of patients with leprosy to cancer. In the statistics furnished by the lepromatia, reference was made of five cases, three of them among males and two among females (42-44). In 1912 Savatard (45) of Manchester reported the case of a male leprosy patient with a fibrosarcoma in a scar resulting from x-ray treatment for lupus, and in 1915 Toyama (46) referred to a case of carcinoma of the penis.

Possibly because of the views sustained by Søegaard on the supposed resistance of the leprosy patient to cancer, the third reference in western literature appeared only 13 years later, in 1929, when Terra (48) reported a case of prickle cell carcinoma of the lower lip in a patient suffering from neural leprosy. Thereafter appeared the observations of Kohayashi (49) and Portugal (50) and, in 1909, that of Ponselle and Quiroga (51). In the chapter by Klingmüller on leprosy in Jadassohn's handbook (52), besides an illustration (Fig. 121) contributed by M. Hirschberg of Riga,
which shows a lepros patient with a cancer affecting the lips, nose and adjoining parts of the face, there is a reference to a case described by Hoffman (42) of Cuba of a man with a prickle cell carcinoma associated with lepros infiltration without bacilli. Jeanesonne (43) pointed out, however, that carcinoids grafted on a lepros background were exceptionally rare. Immediately afterward the reports of Natali (39) and Rokda (44) appeared in literature.

In 1907, in the course of extensive research, Martins de Castro and Martinez de Castro Jr. (35) described 32 cases of cancer of the skin and external mucous membranes (25 of the skin, five of the lips, one of the penis, and one of the anus), and in 1939, Rodrigues de Souza (45) referred to a case of Bowen's disease associated with leprosy.

After these publications various other cases were observed in Brazil (21, 31, 32, 33), Cuba (25, 26, 27), French Guiana (29), Spain (26, 32, 34, 36, 37, 43, 44, 45), Italy (20), Norway (Waalø (46), U.S.S.R. (35), Japan (11, 32), India (37) and former Netherlands East Indies (22).

It is interesting to point out that among these cases there were seven in which cancer was related to chronic ulceration of the feet, in four of which it had metastasized to the regional lymph nodes (33, 17, 27). In another case, quoted by Terreno de las Agua (11), cancer was reported as provoked by constant self-biting of the hand.

Vilanova (48) and Rubí (49), admitted that rarity of cancer of the skin among leprosy patients could be due to atrophy of the skin, in contrast to lupus vulgaris, in which the phenomenon of hyperplasia is nearly always present. Rarity could likewise be due to the spongy, in leprosy, of local irritative treatments (radiotherapy, cautерization, pyrogallic acid, etc.), which are responsible for epithelial destruction and regeneration (pseudoeplhteliomatous hyperplasia), which may be forerunners of cancer. Contreras (4) affirms that skin cancer among leprosy patients is rare, but believes that electrocoagulation and cautérisation of resistant lesions and of the edges of leprosy ulcers, as well as the sunny climate of the Mediterranean region, are factors that could increase the frequency of tumors.

According to the data published up to now, 94 cases of malignant tumors of the skin and external mucous have been described. Analysis of these cases demonstrates various interesting facts, as follows.

Source. Of the 94 published cases, 52 occurred in South America and six in Cuba. In Brazil alone, 48 cases have been observed. In Europe there were 23 cases, of which 11 were in Spain. The remaining 13 cases were verified in Asia.

Sex. There were 86 cases in which the sex was recorded, and 8 in which it was not. The group in which it was recorded consisted of 63 males and 23 females.

Age. In ten cases age was not recorded. The 84 recorded cases occurred in the following age brackets: 20-29 years, four cases; 30 to 39, 11 cases; 40 to 49, 23 cases; 50 to 59, 23 cases; 60 to 69, 17 cases; 70 to 79, 6 cases.

Color. In the European cases, and one case from Asia, totalling 24 cases, even though skin color was not always recorded, it is surmised that they were all white. The six cases in Japan were surmised to be Orientals. The other Asian cases and one European were represented by four Hindus, one Eurasian and one Papuan. Despite the skin color variation in America, cancer occurred almost exclusively in whites, i.e., in 54 patients. Two patients were mulattoes and in only two cases the color was not recorded.

Occupation. Occupation was recorded in only 44 cases (50 cases nonrecorded), of which 21 were among urban workers, 21 among farmers and 2 among sailors.

Types of leprosy. In only eight of the 94 cases the type of leprosy was not recorded. On comparison of the actual classification of leprosy into three types (lepromatous, tuberculoid and indeterminate) with the types described in the original publications, it can be said that among the remaining
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86 cases, 71 were of lepromatous, ten of tuberculoid, and five of indeterminate type.

Anatomic site. In only three of the 94 cases was the anatomic site of the cancer not recorded. Among the remaining 91 cases the malignant disease was located as follows: head, 52 cases; lips, 12; neck, 1; trunk, 2; limbs, 21; genitalia, 2; anus, 1. It should be borne in mind that cancer present in more than one site was not noted in these figures.

Histologic type. In the 94 cases, tumors occurred 96 times. The histologic type was not recorded in 11 cases. Among the 85 cases in which the histology was recorded, there were 40 squamous cell or similar carcinomas, 37 basal cell or similar carcinomas, four cases of Bowen's disease, two sarcomas and two melanomas.

Association of leprosy and cancer in the same histologic examination. Among the 90 cases of tumors, lepromatous lesions together with tumor were noted in 26 cases. Lepromatous lesions were absent in 25 cases. In 45 cases the association was not recorded.

Interval of time between the duration of leprosy and beginning of cancer. Reference was made to this factor in 73 cases. In 21 it was not recorded. Other periods were as follows: 5 to 9 years, 17 cases; 10 to 14 years, 15 cases; 15 to 19 years, 5 cases; 20 to 24 years, 5 cases; 25 to 29 years, 2 cases; and finally 30 to 34 years, 6 cases.

From this analysis, it is interesting to point out that 61.7 per cent of the cases were described in Latin America. The majority of patients were males (67.0%) and the age of greatest frequency was found to be in the 40 to 49 and 50 to 59 year groups (34.5% in each). Cases occurred almost exclusively among whites (83.0%), who were farmers in 24.5 per cent of the cases. In the majority of cases the leprosy was of the lepromatous type (75.5%), and in 55.3 per cent of the cases the tumors were located in the head. Squamous cell carcinoma was the most frequent type (42.6%), and cancer-leprosy association was verified in 27.7 per cent of the histopathologic examinations. Finally, the greatest frequency of cancer occurred exactly in those cases where cancer appeared no more than four years after the onset of leprosy (21.5%).

MATERIAL AND METHODS

The material examined by the author consisted of 539 cases of malignant tumors of the skin and external mucous found in a series of 60,000 histopathologic examinations, the greater part of which were from skin biopsies made for diagnosis of type of leprosy and follow-up in the Secção de Anatomia Patológica do Departamento de Profilaxia da Lepra do Estado de Sao Paulo, during a period of 31 years (1934-1965). This material does not include the 32 cases to which reference was made in the publication by Martins de Castro and Martins de Castro Júnior (20), which was based on obsevations in the same department.

The cases were classified according to sex, age, type of leprosy, association or not with the malignant tumor, site and histologic type of tumor. The leprosy lesion was considered positive when lepra cells, with or without bacilli, were present, or when there were bacilli only. In several cases, and for reasons beyond our control, some of these data could not be submitted.

Besides the hematoxylin-eosin stain and Faraco's method for acid-fast bacilli, Mason's trichrome and elastic fiber staining was carried out in each case in order to verify the degenerative state of the dermis at biopsy. This research was possible in skin fragments which, apart from the neoplastic tissue, presented portions of adjacent skin free from tumor.

RESULTS

The results of examination are presented in Tables 1, 2, 3, 4, 5 and 6. Analysis of the data in the tables shows that malignant tumors of the skin among leprosy patients occurred more frequently in males (59.5%), and in the 50 to 59 year age group (25.4%). The cases with recorded type of leprosy (somewhat less than half of the total, i.e., 37.5%) were all lepromatous, and in 35.6 per cent of the cases leprosy and cancer were found in the same histologic examination. In 64.8 per cent of the cases the tumors were located in the head, basal cell carcinoma being the most frequent histologic type (30.5%).
TABLE 1. Sex distribution of malignant tumors of the skin among persons with leprosy.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>322</td>
<td>59.7</td>
</tr>
<tr>
<td>Females</td>
<td>217</td>
<td>40.3</td>
</tr>
<tr>
<td>Total</td>
<td>539</td>
<td>100.00</td>
</tr>
</tbody>
</table>

TABLE 2. Age distribution of malignant tumors of the skin among persons with leprosy.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>10-19</td>
<td>12</td>
<td>2.1</td>
</tr>
<tr>
<td>20-29</td>
<td>51</td>
<td>9.5</td>
</tr>
<tr>
<td>30-39</td>
<td>86</td>
<td>16.0</td>
</tr>
<tr>
<td>40-49</td>
<td>137</td>
<td>25.4</td>
</tr>
<tr>
<td>50-59</td>
<td>89</td>
<td>16.6</td>
</tr>
<tr>
<td>60-69</td>
<td>35</td>
<td>6.5</td>
</tr>
<tr>
<td>70-79</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>Unknown</td>
<td>122</td>
<td>22.7</td>
</tr>
<tr>
<td>Total</td>
<td>539</td>
<td>100.00</td>
</tr>
</tbody>
</table>

TABLE 3. Type distribution of leprosy in cases of malignant tumors of the skin among persons with leprosy.

<table>
<thead>
<tr>
<th>Type of leprosy</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lepromatous</td>
<td>202</td>
<td>37.5</td>
</tr>
<tr>
<td>Unknown</td>
<td>337</td>
<td>62.5</td>
</tr>
<tr>
<td>Total</td>
<td>539</td>
<td>100.00</td>
</tr>
</tbody>
</table>

TABLE 4. Distribution of leprosy and cancer in the same lesion in cases of malignant tumors of the skin among persons with leprosy.

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leprosy + cancer</td>
<td>192</td>
<td>35.6</td>
</tr>
<tr>
<td>Cancer only</td>
<td>347</td>
<td>64.4</td>
</tr>
<tr>
<td>Total</td>
<td>539</td>
<td>100.00</td>
</tr>
</tbody>
</table>

DISCUSSION

The finding of 539 cases of malignant tumors of the skin among patients with leprosy makes this the largest collection of cases presented to date, and demonstrates, contrary to previous belief of some authors, that the person with leprosy is as subject to the development of cancer as any person without this disease. On addition of the 94 cases previously recorded in literature, the total reaches 633.

The concept of a relative immunity to cancer in the person with leprosy does not appear to be reasonable, and one cannot understand why recent authors, such as Contreras (1) and Terencio de las Agunas (19, 20) on the one hand, should emphasize a relatively low incidence, or why others, such as Kosolopkeeva and Savenich (18), should attribute a high incidence only to the longevity of leprosy patients achieved as a result of modern therapeutic methods.

In view of our finding of 539 cases, it is remarkable that only 94 cases of skin cancer have been found to be recorded in prev
Leprosy and malignancies: a review of the literature

In the state of São Paulo, Brazil, a larger proportion of lepromatous leprosy patients have malignant tumors than those without leprosy. This is because lepromatous leprosy patients are already prematurely aged and could be predisposed to develop cancer.

The highest incidence of cancer in the state of São Paulo was found in the 50 to 59 year age group, whereas in reports in previous literature squamous cell carcinoma predominated. The most frequent age group in our series was the 50 to 59 year period; in the literature the highest incidence was found equally in the 40 to 49 and 50 to 59 year groups.

Considering that the number of known leprosy patients in the state of São Paulo between the years 1934 and 1964 (30 years) was 53,235 (1), of whom one-half were lepromatous in type, and that the number of cases verified by us amounted to 539, we have come to the conclusion that there was one cancer for every 100 patients. It is therefore surprising that Binggeler (12), who worked at the same Department of Leprosy of São Paulo, stated that association of leprosy with cancer of the skin was very rare. The incidence may be even greater than 1/100. Apart from the already mentioned diagnostic difficulties, Caldas (6) referred to cases of skin cancer that had not been submitted to histopathologic examination, and which, consequently, were not included in our research.

For reasons that are obvious, our results are far from being statistically controlled. However, the differences between the frequency of skin cancer in persons with and without leprosy are so great that they must be considered significant. For example, in the city of Santos (State of São Paulo) the frequency of skin cancer is 0.26 for every 100 inhabitants (29), almost one-fourth of that among leprosy patients.

Considering that, contrary to what has been suggested, a person with leprosy, particularly of the lepromatous type, should be more subject to the development of malignant tumors of the skin than the person without leprosy. According to Cowdry (4), the epidermis and its derivatives show a loss of stability as age increases. In some areas of an aged skin, hyperplasia (atrophy) vies with hypoplasia, depigmentation, depigmentation with hyperpigmentation, demineralization with hypomineralization. These are factors that should influence the percutaneous absorption of carcinogenic agents. Adding the lepromatous infiltrations, their regressions, exacerbations, the scars, and acute inflammatory reactions of the suppurative type,
i.e., lepra reaction, to the foregoing, we can conclude that the skin of lepromatous patients presents a high degree of degeneration, histologically characterized by atrophy of the epidermis and elastic degeneration of the dermis, and therefore offers a favorable field for action of cancerogenic agents (Figs. 1, 2, 3).

We do not agree with Villanova's (m) concept that in leprosy an epithelioma loses its local malignancy as well as its capacity to disseminate when faced with a supposed occlusion of lymphatic vessels due to lepromatous scar sclerosis. Also, no differences in the evolution of cancer among leprosy patients have been verified by Martins de Castro and Martins de Castro Jr. (25) or by the present author, and cases with metas-

Fig. 1. Advanced atrophy of the epidermis and elastic degeneration of the papillary dermis. Case of senile keratosis of the face in a 58-year-old female patient with lepromatous leprosy. (Masson's trichrome stain.)

Fig. 2. Advanced atrophy of the epidermis and elastic degeneration of the papillary dermis. Case of a 63-year-old male patient with lepromatous leprosy and a basal cell carcinoma of the face. (Masson's trichrome stain.)
tases have already been quoted in the literature (14, 31).

It is interesting to point out that the high incidence of lip cancer in our material (42 cases) could be related to the insensitivity brought about by leprosy and the habit of smoking. The low incidence of adnexal carcinomas prevalent, likewise, among persons free from leprosy, might be explained by atrophy of cutaneous appendages, so frequent in persons with leprosy. As is known, the leprosy patient, particularly the patient of the advanced lepromatous type, has dry skin, alopecia, feminoid appearance in males, straight hair, and diminished sudorhesis.

Although a parasite of the normal reticulendothelial system cells, the leprosy bacillus can be found in the skin not only within the nerves and arrector pili muscles, but also within the normal epithelial structures (hair follicles, epidermis), melanoblasts, nevus cells, and likewise in cancer cells, as pointed out by Martins de Castro and Martins de Castro Jr. (38). It is to be supposed that in tumors of the reticuloendothelial system leprosy bacilli would also find a favorable field for multiplication. Actually Mota and Portugal (32) described the transformation of a histiocytoma into a leproma. The discovery of bacilli within neoplastic cells in a case of mycosis fungoides led Rath de Souza et al. (40) to attempt the in vitro tissue cell cultivation of the Mycobacterium leprae.

In our material, few of the cases had leprosy bacilli within cancer cells. In the majority of cases these were found within lepra cells in the periphery of the tumor. The absence of bacilli was more accentuated in cases where suppuration, due to necrosis or secondary infection, of the tumor had ensued, a fact similar to that which occurs in lepra reaction (6). This may explain the "improvement" of leproma referred to by Sugai and Monobe (30) and by Hopkins (14). Nor was the leproma lesion found frequently in the stroma proper of the tumor (Figs. 4, 5). In many cases, the leproma granuloma was supplanted and even replaced by the common chronic inflammatory infiltrate of the stroma reaction of the tumor. This explains the finding of the leproma granuloma only in the periphery of tumors, as verified in the majority of cases. In many of the cases in which no leprosy was found associated with cancer, the absence of lepra cells and/
or of bacilli could be explained by the causes cited above. It is interesting to point out that since leprosy is a disease principally of the skin and the nerves, lepromatous lesions and or the leprosy bacillus would rarely be found associated with the tumors of internal organs.

The bacilli found within cancer cells have shapes similar to those found in lepra cells, i.e., typical (either isolated or forming globi) with granular aspect and bacillary dust. In these two last-mentioned cases, cancer cells presented vacuoles similar to Virchow cells (lepra cells with fatty degeneration and nuclear pyknosis). Consequently, we can conceive that the lepra cell-bacillus complex upon which the lepra cell depends (12), does not occur exclusively with histiocytes.

The majority of carcinomas in whose cells bacilli were found were of the basal cell type. This fact could be attributed to

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**Fig. 4.** Lepromatous infiltration in the stroma of a basal cell carcinoma. (H & E stain.)

**Fig. 5.** Lepromatous infiltration in the stroma of a squamous cell carcinoma. (H & E stain.)
the lesser invasive capacity and more chronic evolution of the basal cell carcinoma, as compared with these phenomena in the squamous cell carcinoma.

SUMMARY

A review of literature on the association of cancer and leprosy, and an analysis of 539 cases of malignant tumors of the skin found in a series of 60,000 histopathologic examinations in the Department of Leprosy of São Paulo (Brazil) between the years 1934 and 1965, are presented. This finding of 539 cases constitutes the highest casistic in literature to date. Adding the 94 cases previously recorded in literature, the total reaches 633.

Analysis of these 539 cases showed that malignant tumors of the skin among leprosy patients are more frequent among males (59.7%) and in the 50 to 59 year age group (25.4%). The cases in which the type of leprosy present was recorded (37.5%; i.e., somewhat less than half of the total) were all lepromatous, and in 35.6 per cent of the cases the leprosy-cancer association was evident in the same histologic examination. The tumors were located chiefly in the head (64.8%) and their most frequent histologic type was the basal cell carcinoma (50.5%).

In view of the finding of 539 malignant tumors of the skin and the number of leprosy patients in the state of São Paulo from 1934 to 1964 (53,235), of whom one-half were lepromatous, it can be said that there is one skin cancer for every 100 patients. Such a high incidence would imply that, contrary to the belief of some authors, persons with leprosy, particularly of the lepromatous type, seem more vulnerable to skin cancer than the nonlepromatous population. In the author's opinion, such an apparent difference could be attributed to the atrophy and consequently, to the premature aging of the skin of the lepromatous patient, which facilitates the action of carcinogenic agents.

In view of the high frequency of malignant tumors of the skin among persons with leprosy and the fact that cancer lesions are in some respects clinically similar to leromas or to lepromatous infiltrations, it is possible that in many cases the diagnosis of cancer may be overlooked. In order to make an early diagnosis of skin cancer among leprosy patients, the leprologist should proceed to more careful clinical examination.

Leprosy bacilli are rarely found in cancer cells. When apparent they have the typical shapes (isolated or forming globs), with a granular aspect and bacillary dust. Suppuration due to necrosis or to secondary infection leads to disappearance of the bacilli. The leprosous lesion is rarely found in the stroma of the tumor; rather, in the majority of cases, it is present in the periphery of the neoplastic growth.

RESUMEN

Se hace una revisión de la literatura sobre la asociación de cáncer y lepra, y un análisis de 539 casos de tumores malignos de la piel encontrados en una serie de 60,000 exámenes histopatológicos, en el Departamento de Leprosia de San Pablo (Brasil) entre los años 1934 y 1965. El encuentro de 539 casos constituye la casistic más alta en la literatura hoy en día. Sumando los 94 casos anteriormente registrados en la literatura, el total alcanza a 633.

El análisis de estos 539 casos demostró que los tumores malignos de la piel, en los enfermos de lepra, son más frecuentes en los hombres (59.7%) y en el grupo de edad de 50-59 años (25.4%). Los casos en los cuales se dejó constancia del tipo de lepra (37.98%; v.g., algo menos que la mitad del total) fueron todos lepromatosos y en 35.6% de los casos la asociación cáncer y lepra fue evidente en el examen histológico. Los tumores se localizaron principalmente en la cabeza (64.8%) y el tipo histológico más frecuente correspondió al carcinoma de células basales (50.5%).

En vista del hallazgo de 539 tumores malignos de la piel y el número de enfermos de lepra en el Estado de San Pablo entre 1934-1964 (53,235), de los cuales la mitad fueron lepromatosos, se puede decir que hay cancer de la piel en un enfermo de cada cien. Una incidencia tan alta significaría que, al contrario de lo que piensan algunos autores, personas con lepra, particularmente con la forma lepromatosa, parecen más susceptibles al cancer de la piel que la población no enferma de lepra. En opinión del autor tal diferencia podría atribuirse a la atrofa y, por consiguiente, envejecimiento prematuro de la piel de los
enfermos lepromatosos, lo que facilitaría la acción de los agentes carcinogénicos.

Teniendo en consideración la alta frecuencia de tumores malignos en la piel de los enfermos de lepra, y el hecho de que las lesiones cancerosas son, en algunos aspectos, clínicamente parecidas a las lepromas, o a los infiltrados lepromatosos, es posible que en muchos casos el diagnóstico del cancer se omita. Para hacer un diagnóstico preciso de cancer de la piel, en los enfermos de lepra, el lepólogo debería hacer un examen clínico más cuidadoso.

El bacilo de Hansen se encuentra escasamente en células cancerosas. Cuando se presenta, ellos poseen las formas típicas (aislado o formando globo) con un aspecto granular y polo bacilar. La supuración producida por la necrosis, o como consecuencia de la infección secundaria, lleva a la desaparición del bacilo. La lesión leprosa se encuentra escasamente en el estroma del tumor; mas bien, en la mayoría de los casos, se presenta en la periferia del crecimiento neoplásico.

RESUMÉ

La littérature traitant de l'association entre cancer et lepère est passée en revue. On a procédé à l'analyse de 539 cas de tumores malignes de la peau observées dans une série de 60 000 examens histopathologiques effectués au Département de la Lépre de São Paulo (Brésil) de 1934 à 1965. L'observation de 539 cas représente le chiffre le plus élevé sur lequel a été porté ce genre d'études jusqu'à présent. Si l'on y ajoute les 94 cas déjà rapportés dans la littérature, le total atteint 633.

L'analyse de ces 539 cas a montré que les tumeurs malignes de la peau chez les malades de la lepère sont plus fréquentes chez les hommes (59.7%) et dans le groupe d'âges allant de 20 à 39 ans (25.4%). Lorsqu'on examine les cas pour lesquels le type de lepère a été noté (37.6%, soit moitié de la moitié), on s'aperçoit que tous étaient lepromates. De plus, dans 53.6% des cas, l'association de la lepère avec le cancer apparaissait dans la même coupe histologique. Les tumeurs étaient situées principalement à la tête (62.5%) et le type histologique le plus fréquent était le carcinome à cellules basales (30.3%).

Vu l'observation de 539 tumeurs malignes de la peau et le nombre de malades de la lepère dans le État de São Paulo entre 1934 et 1964 (33,235), dont la moitié environ étaient lepromates, on peut dire qu'il y a un cancer de la peau de 100 malades. Une incidence telle implique que, contrairement à ce que croient certains auteurs, les individus atteints de lepère, et particulièrement ceux du type lepromates, semblent plus vulnérables au cancer de la peau que ce l'est le reste de la population qui ne souffre pas de lepère. C'est l'opinion de l'auteur que la cause d'une telle différence apparente pourrait être l'atrophie de la peau, c'est-à-dire son vieillissement précoce, chez les malades lepromates, ce qui pourrait faciliter l'action des agents carcinogènes.

Du fait de la fréquence élevée des tumeurs malignes de la peau chez des personnes atteintes de lepère, et vu que les leSIONS cancerose sont à certaines égards cliniqutement semblables aux lepères ou aux infiltrations lepromatenses, il est possible que dans de nombreux cas le diagnostic de cancer n'est pas pas. Le lepologue devrait procéder à un examen clinique soigneux afin de faire précocement la diagnostic de cancer de la peau chez les malades de la lepère.

On trouve rarement des bacilles de Hansen dans les cellules cancerouse. Lorsqu'ils sont mis en évidence, ils revêtent les formes typiques (isolé ou en glose), avec aspect granuleux et possède bacillaire. La suppuration suite à la necrose ou infection secondaire entraîne la disparition des bacilles. La lepère lepeuse est rarement observée dans les stromes de la tumeur; au contraire, dans la plupart des cas, elle est située à périphérie de la croissance neoplasmique.

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