

There are a variety of skin diseases nowadays known to mankind, but Jewish law mainly focuses its studies on tzara'at, which is usually referred to as leprosy. Leprosy, which is also known as Hansen's disease, was discovered by Gerhard Henrik Hansen in 1872, and can be identified by skin sores/lesions caused by the bacteria *Mycobacterium leprae* [1]. Although tzara'at is similar in some of its symptoms to leprosy, there are enough contradictory or differing symptoms to suggest otherwise. For instance, unlike tzara'at, leprosy affects only people but not their property, causes hair loss but not loss of pigment, develops slowly and does not change much in a period of a week or two [2]. In addition, the diagnostic techniques and the treatments are entirely different; the Bible abstains from elaborating on any hideous body deformities or the loss of feeling due to nerve damage with which leprosy is associated [3]. Moreover, based on historical and archeological testing, the original cases of leprosy in the Middle East were between 324 and 325 BCE [4]. Given the fact that there is not enough supporting evidence (other than the Greek translation of the word tzara'at, which is *leprae*), it can be concluded that tzara'at is not the biblical version of leprosy.

There are many scholars who question which presently known disease/s can be compared to tzara'at. Dr. Chaim Trachtman, a Clinical Professor of Pediatrics, has a fascinating answer. In his paper on the website, "The Torah: A Historical and Contextual Approach," he compares tzara'at to melanoma, a very dangerous type of skin cancer. The main reasons for his hypothesis are the hot climate in the Middle East with constant direct exposure to the sun, and the fact that medicine today can cure almost all cancers, even metastatic melanomas, without surgery or scarring (unlike leprosy). Since this can be achieved, although through immunotherapy and not by the biblical cleansing rituals, it shows that there might be a connection between these two diseases.

To analyze this further, Dr. Trachtman explains how the symptoms of melanoma can be compared to the ones of tzara'at. He uses an acronym, ABCDE, which stands for Asymmetric, Border, Color, Diameter, Enlarge, Evolve or Elevate [5]. Melanoma is identified through its asymmetric lesion shape, unusual border (undefined or strangely shaped border), if it is multicolored, has exceeded 6.6mm in diameter, or generally has grown from its original size. Dr. Trachtman shows that the symptoms of tzara'at correspond to the ABCDE acronym by translating the peshat in the book of Vayikra (chapters 13 and 14) into English. The lesion types, mentioned in chapter 14 verse 56, are depigmented (*baheret*), hypo-pigmented and raised (*se'et*), or scabbed (*sapachat*), where *se'et* and *sapachat* could represent asymmetric lesions. The borders are

irregular if following the definition of *tzarev'et ha mechuve*, in Chapter 13 verse 28, which means the scar of a burn. As for the color, it is said to be as white (*levana*; 13: 4) or a little reddish (*adamemet*; 13:19). The loss of hair pigment, due to tzara'at, from black to yellow to white can be associated with melanocyte (a mature melanin-forming cell) being the cell from which the lesion originates. Stem cells, which are precursors of melanocytes, reside at the base of hair follicles and produce hair pigment. When melanocytes go through malignant transformation it is the physio-pathological basis of melanoma. There is no information about the diameter criterion in chapters 13 or 14. However, after the tzara'at has moved on to the house or clothes, the Kohen would measure it after one week to see if there are any changes in its size, which would indicate if the disease was cured or not. That examination is referred to as the evaluation period [5].

Moreover, Dr. Trachtman explains why a quarantine was required for the *metzora* (a person suffering from tzara'at). Nowadays if a person has a contagious disease, he will be quarantined in order to keep the people around him, who are not infected, safe. Hence, the need to quarantine the *metzora* while his tzara'at is being examined, and his banishment from the camp if the case was very severe, might be mistaken as evidence in support of the comparison to leprosy or other infectious diseases. Melanoma, like all cancers, is not contagious and does not require the patient to be isolated. Still, the need for quarantine might not be out of fear for the community's safety (just like it is not mentioned that the Kohen seems to be concerned about himself when he examines the person's skin; he takes no precautions), but rather, it may be relying on the idea that the *metzora* was considered tame' (*נמו*) and that his presence would therefore disturb the *kedusha* (holiness) of the city [5].

Furthermore, Dr. Trachtman points out that the Kohen's medical approach to the tzara'at is similar to a physician's approach to melanoma. He writes, "It is worth noting that under no circumstances does the Kohen excise the lesion. This is significant since surgery is not appropriate for patients with advanced metastatic disease." Instead of surgically removing the lesion, the Kohen monitors it and offers hope for forgiveness and cure in the future (this is based on the text in the book of Vayikra). This is similar to the current care methods for patients with metastatic melanoma, mainly working on preserving the immune system since a variety of conditions can have sudden remissions. As stated by Dr. Trachtman, "If the immune system is responsible for controlling melanoma and checkpoint inhibitor therapy potentiates the response, it is plausible, albeit rare, that melanoma could regress on its

own, which is the best that could have been expected in ancient times” [5]. This makes sense because in Biblical times the Kohen was not a practicing oncologist or an infectious disease specialist, thus the metzora had to depend on a miracle from Hashem.

Another way of understanding Hashem’s role comes from referring to tzara’at as a form of cancer. Cancer is a prevalent disease and in some cases, especially when diagnosed early on, can be cured. However, since it attacks the human body from within unusual cell proliferation instead of external sources like contagious bacteria, it can inspire contemplation and dependence on Hashem. Rambam, one of the most influential Torah scholars of the Middle Ages, referred to tzara’at as a “sign (ot) and wonder

(pele’).” As stated by Professor James Diamond, a professor of Jewish Studies at the University of Waterloo, Rambam often uses the term pele’ in legal contexts simply to imply a rare, yet entirely possible, occurrence within nature’s boundaries (Mishneh Torah, Laws of Leprosy 16:10) [6]. Hence it is important to maintain a relationship with Hashem.

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