

# Halo Nevi – A Decade of Surgical Experience in Southern Israel

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## Abstract

**Background:** Halo nevi are defined as benign melanocytic nevi that are surrounded by a rim of depigmentation, resembling a halo. This phenomenon often indicates the beginning of involution and subsequent regression of the melanocytic nevus, a process that extends over a period of several months. The consensus is that the central lesion should be evaluated and biopsied if there is clinical suspicion of dysplasia or malignancy. **Objectives:** To determine the characteristics of halo nevi excised in southern Israel during a decade. **Methods:** The Soroka University Medical Center is the regional hospital of southern Israel with its pathology institute evaluating all of the cutaneous lesions excised in the Soroka University Medical Center and most of the outpatient clinics in the region. We conducted a retrospective study compiling demographic and histopathological data from the institute's computerized system on all patients that underwent an excision of a cutaneous lesion that later was diagnosed histopathologically as a halo nevus between the years 1996 and 2005.

**Results:** Thirty six lesions were diagnosed as halo nevi, with characteristics similar to previous publications. Two of the 36 lesions were not clinically suspicious for dysplasia but were histologically diagnosed as dysplastic nevi.

**Conclusions:** The clinician should evaluate the central lesion as suggested in previous publications, albeit with a higher level of suspicion for dysplasia, since the halo phenomenon and the regression of the pigmented nevus may interfere with accurate clinical diagnosis.

## INTRODUCTION

Halo Nevi (HN), also termed Sutton nevi, leukoderma acquisitum centrifugum, or halo phenomenon, are defined as benign melanocytic nevi that are surrounded by a rim of depigmentation, resembling a halo [1-5]. HN usually appear on the back and are common in children and young adults, with a mean age of onset at 15 years [5-7]. The incidence of HN in the population is estimated to be approximately 1% and there is no predilection for sex or race [1, 8]. Multiple lesions are found in about 50% of the cases, occurring either simultaneously or successively. The halo phenomenon often indicates the beginning of involution and subsequent regression of the melanocytic nevus, a process that extends over a period of several months [5]. The term HN is classically applied to the first stage of clinical development, i.e., a pigmented nevus with a surrounding rim of depigmentation. In stage II, the central nevus loses its pigmentation and appears pink with a surrounding halo. In stage III the central nevus disappears leaving only the circle of depigmentation, and in stage IV the depigmented area undergoes repigmentation, with no trace of its prior

existence over a period of months or even years [5, 9].

Histologically, the depigmentation in the halo is caused by destruction of melanocytes. The degree of depigmentation and melanocytic necrosis is associated with the number of leukocytes, mainly CD8-positive T lymphocytes and monocytes, that infiltrate the halo [10]. Thus, these cells are thought to be the effectors in the destruction of the melanocytes.

The halo phenomenon is most common in benign melanocytic nevi but it may also be observed in other benign or malignant neoplasms such as blue nevi, Spitz juvenile nevi, neurofibromas, seborrheic keratoses, dermatofibromas, basal cell carcinomas and malignant melanomas [5, 7, 11-13]. Therefore, the consensus is that the central lesion should be evaluated and biopsied if there is clinical suspicion of nevus dysplasia or malignancy [7].

Mooney et al examined the histopathology of 142 lesions excised in the United States that were given the clinical or histologic diagnosis of a HN. All but 3 were found to be compound, junctional, or intradermal nevi with a broad

spectrum of atypia [11].

The southern region of Israel is characterized by one central regional medical center with a single pathological department that handles most if not all the biopsies of this region and a population that is composed of 85% Jews from various origins and a large Arab population, mainly Bedouin. As far as we know such a study regarding the demographic, clinical and histological characteristics of HN had not yet been performed in southern Israel. Therefore we conducted a retrospective study in order to determine the characteristics of HN excised in southern Israel.

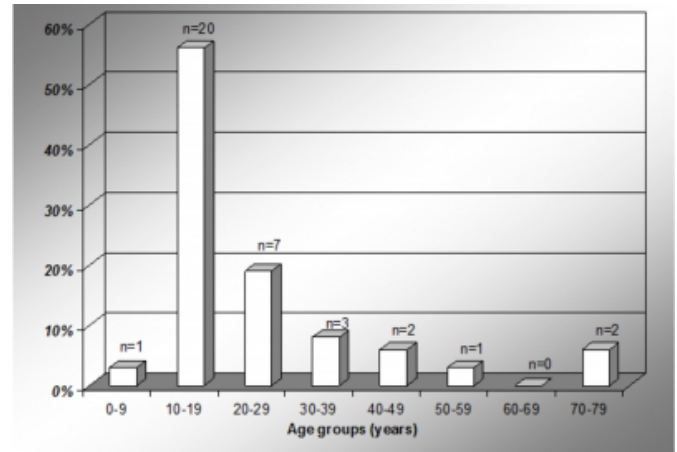
**METHODS**

The Soroka University Medical Center's pathology institute is the regional facility for southern Israel, evaluating almost all of the lesions excised in the Soroka University Medical Center and its affiliated outpatient clinics in Israel's southern region. Using the institute's computerized system we conducted a retrospective study, compiling the relevant data on all patients that underwent an excision of a cutaneous lesion later given the histopathological diagnosis of HN between January 1<sup>st</sup> 1996 and December 31<sup>st</sup> 2005. These data were recorded and analyzed according to race, sex, age, anatomical region of HN excised, whether or not the lesion was suspected for dysplasia by the excising physician, and the histological classification and size of the lesion.

**RESULTS**

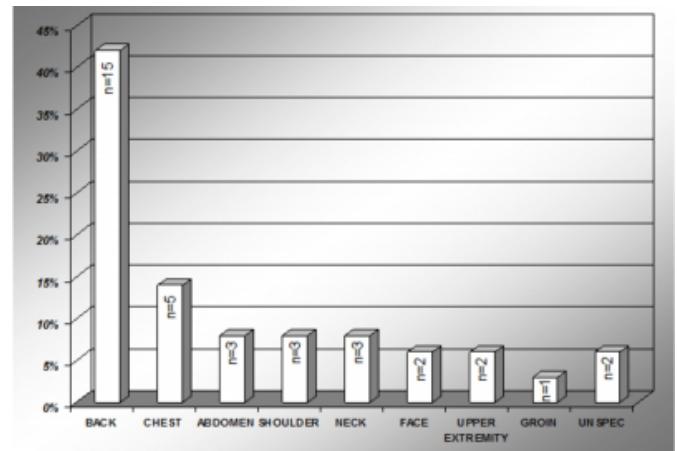
Between January 1<sup>st</sup> 1996 and December 31<sup>st</sup> 2005 thirty six patients underwent excisions of cutaneous lesions that were given a histopathological diagnosis of a HN, one per each patient. All patients were of Jewish ethnicity, 22 (61%) were male and 14 (39%) were female. The average age was 23.9 years, with a range of 4 to 79 years of age (figure 1).

**Figure 1**



The most common anatomical location was the back, appearing in 15 of the 36 lesions excised (42%). Other anatomical locations were the chest in 5 lesions (14%), the abdomen in 3 lesions (8%), the shoulders in 3 lesions (8%), the neck and nape in 3 lesions (8%), the face in 2 lesions (6%), the upper extremities in 2 lesions (6%), the groin in 1 lesion (3%) and 2 lesions for which the anatomical location was unspecified (figure 2).

**Figure 2**



In 10 of the cases (28%) the excising physician suspected dysplasia but according to the histological diagnosis none of these lesions were dysplastic. Only 2 of the 36 lesions (6%) were histologically diagnosed as dysplastic, both appearing on the back, with no clinical suspicion for dysplasia. Fourteen lesions (39%) were histologically classified as compound nevi, one (3%) as a junctional nevus and 21 (58%) were classified as undefined halo nevi. The diameter of the nevi ranged between 0.2cm and 1.2cm with an average diameter of 0.5cm.

## **DISCUSSION**

The goal of the study was to explore the characteristics of excised HN in southern Israel. The southern region (the Negev) with its heterogeneous population of nearly a million is served by one central medical facility. The patient group presented in this article is relatively small but it reflects most of the excised HN during a decade in southern Israel.

According to prior studies, HN usually appear on the backs of young patients with an average age of 15 years. Our data concurs, with the back the most common anatomical location (42%) and the most common age group between 10 and 19 years of age (56% of all patients). The average age found in our study, 23.9 years, is a few years older than the ones reported in previous studies. This fact is rather strange as the medical facilities are readily and freely available for all and in the last 15 years there is a growing awareness to early detection of skin lesions and many are coming to regular, yearly checkups. Previous studies report no predilection for sex or race. In our study there was a small male to female predominance. An interesting finding is that all patients were of Jewish ethnicity despite southern Israel's non-Jewish population ranging from approximately 15% in 1996 to 22% in 2005, according to Israel's Central Bureau of Statistics publications [14-15].

HN are most commonly benign, as also seen in the results of our study, with almost all lesions classified as benign nevi with an average diameter of 0.5cm. Two of the 36 lesions were not clinically suspicious for dysplasia but were histologically diagnosed as dysplastic nevi. We believe the reasons for this finding are the halo phenomenon and the regression of the pigmented nevi, making true clinical

diagnosis more difficult. Thus, we conclude that when clinically evaluating a HN, the clinician should evaluate the central lesion as stated in previous publications, but with a higher level of suspicion for dysplasia.

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