



ORIGINAL RESEARCH PAPER

Pathology

MARJOLINS ULCER: A PREVENTABLE MALIGNANCY ARISING FROM OR EVEN TATOO SCAR.

KEY WORDS: marjolin, scar, tattoo, wound.

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ABSTRACT

Background : Malignant change of post traumatized scar and post burned scars is inevitable if deeply affected and left to heal by secondary intention, those which never healed completely. Marjolin ulcer emanate from any chronic wound, unhealed scar, tattoo scar.

Material and method : Five year study comprising of 60 cases of ulcer over scars showing high grade dysplasia and carcinoma on scrape and FNA smears.

Conclusion : An early and prompt diagnosis of malignant change in chronic nonhealing ulcers over scar followed by conventional therapies are only aspects of better control over marjolin ulcer reducing morbidity and mortality.

INTRODUCTION:

Jean Nichol marjolin was the first to define the malignant changes developing on burnt tissues in 1903. [1] Then marjolin ulcer definition is used synonymous with squamous cell carcinoma developing over scar tissue, though most frequent wound on scar type causing marjolin ulcers is burn , osteomyelitic scar, amputation stumps, regions of chronic fistulas ,insect bite sites ,vaccination sites, and other chronic wounds was previously defined in literature. [2]

Burn scar carcinomas are frequently detected on extremities, but other sites in head and neck region can also occur(20-30%). [3] Marjolins ulcers are mostly squamous cell carcinoma and second most common diagnosis is basal cell carcinoma. [4]

Above all there is a long duration of years after formation of scar to develop malignant transformation .The age of scar varies from 2 to 20yrs to develop into squamous cell carcinoma .So jolly well one can prevent malignancy on surgical intervention and by detecting the ulcer in the stages of mild to moderate dysplasia before developing carcinoma.. FNAC and scrape cytology smear has great role in preventing malignancy in a premalignant stage. In this study it is aimed to make a retrospective evaluation of patients presenting with ulcers over scars of any cause , any anatomical localization on body surface and of any duration.

MATERIAL AND METHODS:

This is an observational, retrospective as well as prospective study of five years duration from July 2014 to July 2019 done at the department of pathology, VIMSAR, Burla, Odisha.

FNAC /Scrape cytology was performed on chronic non healing ulcers coming to department of pathology mostly to exclude malignancy.

We have included the cases who developed ulcers over scars resulting from trauma due to physical, chemical agent, foreign body injury.

We encountered ulcer formation in scar in 60 cases during a period of five years from 2013 to 2018. We have taken scrape smears from floor of the ulcers as well as margin of the ulcers. Besides we had done FNAC from the base of ulcer and both dry and fixed smears were made. Smears were stained with Diff quick and papaniculaoustain respectively. Stained smears were meticulously screened for any squamous dysplasia wherever possible and for any other malignant transformation. The tissues were subjected to mature tissue processing followed by staining by Haematoxylin and Eosin (H&E) staining. The cytological diagnosis were correlated

with histological diagnosis.

RESULTS:

A total of 162 cases presenting with ulcer over scar were included in a span of five years with a male to female ratio 2:1. The median age was 52 years with an age range of 26 years- 65 years. The majority of the patients were above the age of 40years.

History of burn scar was the most common presentation accountin for 60% of total cases followed by chronic exposure to heat (1), exposure to acid (2), post operative scar(1).

The mean latent period between the initial injury and development of marjolins ulcer was more than 10years with an average of 28 years.

Microscopically 92 patients diagnosed as mild squamous epithelial dysplasia, 54 in moderate squamous dysplasia, 12 cases of squamous cell carcinoma, 01 BCC, 01 in melanoma and 01 in fibrohistiocytic tumor.

Table 1- Percentage of patients in in relation to etiology

Charecteristics	number	percentage
Burn	126	78%
Tattoo scar	02	1.2%
Chronic heat exposure	12	7.4%
Acid burn	18	11.1%
Operation scar	04	2.4%

Table -2- Histological types and its percentage.

Basal cell carcinoma	09	5.5%
Sq. cell carcinoma	147	90%
Malignant fibrous histocytoma	02	1.2%
melanoma	04	2.4%



Figure 1 : 72 yr lady presented with post burned ulcer on lateral aspect of leg.



Figure 2 : 55 yr lady presented with ulcer over tattooed skin of leg.

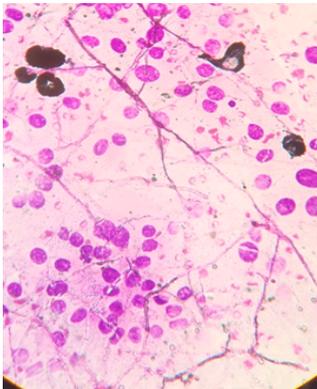


Figure 3 : cyto smears from ulcer base showing Malignant epithelial cells present in groups and discrete manner

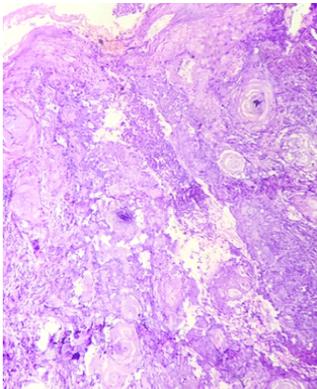


Fig : 4 Histology of the same case(Fig-3) showing well differentiated Squamous cell carcinoma .

DISCUSSION:

There is a close correlation between skin tumors and injured skin observed since years. Chronic non healing ulcers or scars undergoing malignant transformation is a rare phenomenon with an estimated incidence of 2% [5]. Most frequent etiologic factor for development of skin cancers is due to burn injuries. [6] A rare and unusual relationship between squamous cell carcinoma development over injury due to tattoo was seen which is observed by a very few research.

Marjolin s ulcers are defined as Squamous cell carcinoma in 95%, BCC in 2-3%, Melanoma or Sarcoma very rarely.

Association between latency period and malignant transformation was first suggested by Lawrence(1). Latency period is the time interval between the insult to skin and production of ulcer .This period is divided into pre and post ulceration period . Some researchers like Treves and Pack

have described acute and chronic phases also but in our study most cases were in chronic phase [7]

Malignant transformation of chronic nonhealing ulcer is closely related to duration of ulceration .Duration of ulceration is directly proportional to risk of dysplasia. [8]

In our study almost (68%) cases reported with nonhealing portion of an initial injury which means repeated ulceration and healing procedure continued shortly.

Biopsy is the gold standard for diagnosis of Marjolin ulcer. [9] It should be advised for suspicious lesion that have not healed for 3 month.

Treves and Pack defined the average age as 53.5yrs for chronic cases and as 56yrs for acute cases. [7]

Scald burns of scalp and trunk are frequently seen in a developing country like ours and they are also potentially capable of developing marjolin ulcer as in our study it is around 11.1%.

A few study say about ulceration over a burn due to tattoo scar ,however in ours found one case with ulceration over tattoo scar burn. [10,11]

Several benign and malignant lesions may occur in tattoos, including verruca, granulomas, keratoacanthomas, squamous cell carcinomas, malignant melanomas and basal cell carcinomas

Most of the skin tumor arises on head and neck region but Marjolin ulcer develop frequently on extremities. In our study lower extremities are mostly involved sites (2.6%), lateral margin of nose(8.6%) and lastly scalp(7.4%). Treves and Pack have described acute and chronic phases also but in our study most cases were in chronic phase. [9]

Histopathological and cytomorphological diagnosis of malignant transformation in marjolins ulcer does not pose much problem . Hence immunohistochemistry was restricted to few cases only like use of vimentin and high molecular weight keratins.

Wound changes that are suspicious for Marjolin ulcer should be immediately biopsied. [13]

Marjolin's ulcer is a rare type of skin malignancy associated with previous insult. [14]

Squamous cell carcinoma developing over Marjolin ulcer are more aggressive and higher metastatic potential compared to SCC originating in normal skin.

It is important to point out that only a portion of the ulcer may become malignant. The diagnosis, therefore, can be easily missed on small biopsies as in this case. Incisional or excisional biopsies are recommended when there is a heightened suspicion of malignancy. [15]

The treatment of Marjolins ulcer requires wide local excision . Early diagnosis followed by prompt treatment with block dissection of regional nodes, amputation in advanced lesions of limbs, radiotherapy and chemotherapy will reduce the mortality and morbidity of cases.

CONCLUSION:

Marjolin ulcer can be a preventable lesion by prompt diagnosis, proper surgery and skin grafting in the dysplastic or premalignant stages. Now in the present decade as the incidence of malignancy over tattoo scar is increasing ,the surgeons and pathologists are to be more alert towards these lesions.

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