TREATMENT OUTCOME IN CUTANEOUS BASAL AND SQUAMOUS CELL CARCINOMAS

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Abstract:
Objective-To analyze retrospectively the outcome in patients with squamous cell carcinoma (SCC) and basal cell carcinoma (BCC) of skin, at our institute. Materials and methods-A total of 168 patients had reported with primary skin malignancies to our institute from 2005 to 2008. Of these, 40 patients (23.8) had BCC and 77 (45.8) had SCC. The predominant age group was fifth decade for both malignancies. While BCC had equal incidence in either sex, SCC was predominantly seen in males. Radiotherapy was the predominant treatment modality for patients with BCC, 20 patients treated with radiotherapy, 16 with wide excision and 4 with excision followed by radiotherapy. For squamous cell carcinoma, wide excision was done in 41 patients, amputation in 21 patients, radiotherapy in 9 patients and excision followed by radiotherapy in 6 patients. Radiotherapy was given mainly with 4 and 9 MeV electrons. All patients were followed up to November 2009. Results-All patients with basal cell carcinoma are currently disease free. All patients with squamous cell carcinoma who received radiotherapy, either alone or following wide excision are disease free. 39 out of 41 patients treated by wide local excision and 17 out of 21 amputated patients are disease free. One patient died due to non-malignant cause and the remaining due to disease. There was no significant difference in survival on comparing both groups. Conclusion - Radiotherapy is quite effective in the management of cutaneous BCC and SCC.

Keyword : Squamous cell carcinoma, Basal cell carcinoma, Radiotherapy, Outcome

Introduction:
Non melanoma skin malignancies are the most common skin malignancy in humans. According to the American Cancer Society, more than 1 million new basal and squamous cell carcinomas of the skin occurred in the United States in 2008 [1]. The age adjusted incidence rate of non melanoma skin cancers varies from 1 to 2 per one lakh population in India. The incidence
is very low when compared with other countries. For example Goiania of Brazil, has an age adjusted incidence rate of 169.5 per 1 lakh population in males and 154.8 per 1 lakh population in females. Chennai Population based cancer registry has an age adjusted incidence rate of 1.4 in males and 1.1 in females. Although basal cell carcinoma is more common in the western world squamous cell carcinomas are reported to be higher in India. There is a relatively higher incidence of these cancers in some of the districts of Rajasthan (Ajmer), Kerala (Thrissur) and Tamil Nadu (Villupuram) states in both males and females [2]. Usually skin cancer cases are often not reported to cancer registries, the actual incidence of these cancers likely far exceeds these estimates. Even though the knowledge of skin cancer is on the rise, the incidence is increasing most probably due to changes in sun exposure habits and due to increased detection. Lloyd has hypothesized that stratospheric ozone depletion may be a contributing factor [3]. Recent data say that basal cell carcinomas and squamous cell carcinomas account for approximately 80% and 20% of non melanoma skin cancer [4]. The term non melanoma skin cancers is often used to refer to these two histology; however, other types of non melanoma skin cancer, such as adnexal carcinomas (involving the sweat and sebaceous glands) and sarcomas, are less common and differ considerably in their epidemiologic features, behavior and cell type [5].

Etiology: UV light is the most common predisposing and preventable factor in whites. Damage from UV light appears to be cumulative with time. So usually skin cancer develops after 40 years of age [6]. The incidence of basal and squamous cell skin cancer differs with skin phenotype, average annual UV radiation, and geographic latitude, with the highest incidences seen in countries such as Australia and South Africa. Other risk factors are trauma and chronic irritation. It also arises in marjolin’s ulcer, scars from vaccination, tattoo, and non healing ulcers, chronic radiation dermatitis, longstanding lesions of discoid lupus erythematosus, erosive or hypertrophic lichen planus, lichen sclerosis and photokeratosis. Occupational exposure to arsenic-containing pesticides, mineral oil, coal tar, soot, and polychlorinated biphenyls are associated with an increased risk for the development of non melanoma skin cancer. Onco viruses have also been implicated. Genetic disorders with increased risk of skin cancers include xeroderma pigmentosum, oculocutaneous albinism, epidermodysplasia verruciformis, dystrophic epidermolysis bullosa, Gorlin syndrome etc [5]. An interesting point to note is that patients receiving immune suppressive therapy especially for solid malignancies is at increased risk of developing skin malignancies especially squamous cell carcinomas. They have a 65% increased risk of developing squamous cell carcinomas and 10% increased risk of developing basal cell carcinomas [7, 8]. It can also develop in HIV patients but basal cell carcinomas are common and the ratio of BCC to SCC is 7:1 [9].

Methods and materials: Patients: A total of 168 patients with primary skin malignancies were treated at our institute from 2005 to 2008. All patients with histological proven squamous cell carcinoma and basal cell carcinomas were taken for the study. There were 40 patients with BCC and 77 patients with SCC (Totally 117 patients); remaining patients were excluded from the analysis. Squamous cell carcinoma was
predominantly seen in males (58) than females (20), Basal cell carcinoma was almost equal in both sexes (22 males and 18 females). Age group ranged from 12 to 95 years, both were common in the 5th to 7th decade of life.

**Biopsy:**
All patients underwent biopsy of the lesion and histology examination was done. For those patients who underwent excision outside, slides and paraffin blocks were reviewed again at our institute and histology was confirmed. The histology encountered were Squamous cell carcinoma, Basal cell carcinoma, malignant melanoma, Adnexal tumors and poorly differentiated carcinomas.

**Staging:**
All patients were staged according to the American Joint Committee on Cancer (AJCC) staging system 2002 [10]. Some of the patients who underwent excision outside cannot be assigned proper T staging because of the non availability of proper surgical notes. 6 patients had stage 1 disease, 16 patients had stage 2 diseases, 41 patients had stage 3 disease and 2 had stage 4 disease. Others could not be staged.

**Treatment administered:**
All the patients received either one of the following treatments – Radiotherapy, Surgery, surgery followed by radiotherapy, amputation. Surgery was combined with split skin graft or ilioinguinal block dissection wherever necessary.
Different treatment modalities in squamous cell carcinomas
Different treatment modalities in Basal cell carcinomas

**Radiotherapy:**
Radiotherapy was mainly administered using 4 – 9 MeV electrons. Photons were also used when necessary, Single direct field was used in most of the cases and they were treated in 200cGy per fraction up to a total dose of 50 -60 Gy in 5 – 6 weeks. Post operative radiotherapy was given to those patients who were having high risk for recurrence such as T4 tumours, close margins (<5mm), recurrent disease, perineural involvement (major and minor nerves), rapidly growing tumour, lympho vascular invasion, in-transit metastases, regional nodal involvement. Irradiation of a graft was deferred until it was well healed and healthy (usually 6–8 weeks), and the entire graft was included in the target volume. Bolus was used whenever necessary.

**Surgery:**
The aim of the surgery was to excise the tumor with maximal clearance. In those patients in which wide excision was not possible, amputation was done. The surgery was combined with split skin graft or llio inguinal block dissection wherever necessary. It was followed by post operative RT if indicated.

**Follow up:**
Patients who were receiving radiotherapy were assessed for acute radiation toxicity daily during treatment. For all patients follow-up was done after treatment once in 2 months for the first six months, once in three months up to 3 years and then once in 6 months up to 5 years and yearly thereafter.

**Analysis and results:**

**Statistical analysis:**
Statistical analysis was done using SPSS software version 17. Survival analysis was done using actuarial method using SPSS.

**Squamous Cell Carcinoma:**
Out of the 77 patients, 41 (53%) patients underwent wide local excision, 6 (8%) patients had excision followed by radiotherapy to the local region, 9(12%) patients received RT alone and 21(27%) patients underwent amputation.

**Basal cell carcinoma:**
Of the 40 patients 20 (50%) patients received radiotherapy alone, 16 (40%) underwent excision alone, 4 (10%) underwent excision followed by radiotherapy

**Results:**

**Squamous Cell Carcinoma:**
All patients with squamous cell carcinoma who received radiotherapy, either alone or following wide local excision are disease free. 39 of 41 patients treated by wide local excision and 17 of 21...
amputated patients are disease free. 6 died in SCC group(4 were treated by amputation and 2 by WLE), In the amputation group 1 died due to parietal infarct and others died of disease. In WLE group both died due to disease.

**Basal cell Carcinoma:**
Irrespective of the treatment modality used all patients with Basal cell carcinoma are currently disease free. There was no mortality in Basal cell carcinoma group at the time of analysis. The 4 year survival in squamous cell carcinoma group calculated by actuarial method is 90 % and that in Basal cell carcinoma group is 100%. When analyzed according to the treatment received, those patients who received radiotherapy either as a sole modality of treatment or following surgery have a survival rate of 100% at four years. Those patients who had only surgery has a survival rate of 91% at 4 years. Even though there is a difference in survival between surgery and Radiation only arm the difference was not statistically significant (p value - 0.14), also there was no statistically significant difference between the surgery arm and surgery followed by post operative RT arm (p value – 0.43).

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**Discussion:**
Squamous cell carcinomas occur in the sun exposed areas of the skin. They are usually found in the older individuals and are rare in children and adults. But it can occur in young patients who have genetic defects such as xeroderma pigmentosa. The youngest patient in our study developed skin cancer at an age of 23 and he was affected by xeroderma pigmentosa. They also occur more commonly in albinos because melanin is deficient in those individuals which protect the skin from UV light. Basal cell carcinomas are more commonly found in head and neck region (80%); approximately 15 % occur in shoulders, back and chest. Multiple basal cell carcinomas occur in basal cell nevus syndrome (Gorlin syndrome). Basal cell carcinoma can present in many forms such as a rodent ulcer, cystic...
nodule, erythematous plaque with visible telangiectasia, pale plaque with variable induration etc. All basal cell carcinomas are slow growing, non aggressive with local invasion and rarely with metastasis.

Squamous cell cancers are mostly managed by surgery. This includes conventional surgical excision, Moh’s micrographic surgery, non excisional ablative techniques, amputation etc. Basal cell carcinomas are treated alike, but curettage and desiccation is most frequently used; cryotherapy can also be used [11]. Non surgical methods are photodynamic therapy and Radiotherapy.

Even though the lesions can be excised by surgery, recurrence is a major concern. The risk factors describe by Rowe.et.al for recurrence are a) Lesions more than 2 cm in size, b) Depth of invasion more than 4mm and Clarke level IV or V, c) Tumor involvement of the bone, muscle or nerve, d) Location on ear or lip; e) Tumor arising in scar, f) poorly differentiated tumors, g) immuno suppression and h) absence of inflammatory infiltrate [12].

In our study 15 patients (20 %) in squamous cell carcinoma group received Radiation either alone or following surgery and 24 patients (60%) in Basal cell carcinoma group received Radiation either alone or following surgery. RT is necessary in high risk patients to prevent recurrence and also in locations where surgery will impair the cosmesis. All patients in our study who received post operative RT and those patients who received only RT are disease free. This shows the effectiveness of Radiation in cutaneous squamous and basal cell carcinomas of the skin. The mortality was more in surgery only arm, may be because the patients with more advanced disease who were taken up for amputation were also included in the surgery arm. Radiation is a very important weapon in the fight against non melanoma skin cancers and when used judiciously it can improve the local control with preservation of cosmesis. Change in the color and texture of the skin in few years after radiation is more bothersome in western individuals because of the fair skin but it is not of much importance in indian scenario because of the presence of dark skin.

Conclusion:
Squamous and basal cell carcinomas of the skin are one of the potentially curable diseases if detected early. Although patients can be treated with either surgery or radiotherapy, radiotherapy offers the chance of preserving cosmesis. Radiotherapy is also highly efficient in preventing local recurrence after incomplete excision. To conclude, Radiotherapy is very effective in the management of cutaneous squamous and basal cell carcino-
References:


