Cashew Nut Extract (De BCC ®) in the Treatment of Basal Cell Carcinoma

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ABSTRACT

Purpose of the study. Basal cell carcinoma (BCC) remains as the most common cutaneous neoplasm in the Philippines consisting of more than 60% of all skin cancers. *Anacardium occidentale* (Linn.) cashew extract, which had been used successfully in the removal of warts and moles in previous studies, is presented as a therapeutic option in BCC.

Methods. An open-label prospective study was conducted on 36 patients (mean age of 65 years) with documented BCC lesions on middle third of the face. Cashew nut extract (DeBCC®) application was offered to these patients as an alternative option to very unacceptable extirpative surgery offered by general and plastic surgeons as treatment for their lesions. Lesion size ranged from 7.5 – 64 mm. (26.26 mm). Topical treatment was applied every 1-2 weeks, as needed. Follow – up examinations with photographic documentation were made every week to evaluate success of the treatment.

Results. After a mean of 7 treatment applications (range of 1 – 20) all the lesions were undetectable on clinical examinations. Mild tingling sensation, which was reported by all patients during the treatment applications, was tolerable on all occasions. With follow – up ranging from 5 – 60 months (38.72 months), 16 patients completed the planned 5 – year post-treatment follow-up period. There were no recurrences detected.

Conclusions. *Anacardium occidentale* (Linn.) cashew extract (DeBCC®) presents a viable and acceptable treatment option in primary BCC. The importance of this treatment option could be stressed in patients with lesions not amenable to the prescribed wide margin of resection needed in surgery.

Key Words: Cashew nut extract, Basal cell carcinoma, skin cancer

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Introduction

Basal cell carcinoma (BCC) is still the most common skin cancer in developed countries as well as in developing countries like the Philippines. It had been estimated that the annual incidence is 1 million, over 500,000 and 190, 000 in the USA, Europe and Australia, respectively.[1] Moreover, the reported rate increased by 5% in the USA, and 20% in Australia, between 1985 to 1995.[1-3] More than 60% of all skin cancers locally are basal cell carcinoma.[4]

Most of these patients could be managed effectively using either simple excisional surgery. However, lesions located in the mid-face (middle third of the face or what some would refer to as the H-zone[5]) or large lesions close to the vital structures and orifices of the face, pose a greater clinical challenge.[6] Various other surgical approaches (curettage-electrodessication, cryosurgery, carbon dioxide laser therapy, and Mohs' chemosurgery) and non-surgical approaches (radiotherapy, intralesional interferon, photodynamic therapy, oral retinoids and various topical therapies) have been reported with the ultimate objective of cure and better cosmetic results.

The authors had been aware that *Anacardium occidentale* (Linn.) cashew nut extract, an escharotic agent, had been used successfully in the removal of warts and moles in previous studies.[7-9] Its use was offered as an alternative treatment to patients who had BCC in the middle third of the face or with large lesions particularly in the proximity of vital structures and orifices of the face. Frequently, a very unacceptable extirpative surgery was offered by general and plastic surgeons as treatment for these lesions.

The aim of this case series is to present a simple and acceptable alternative treatment option in the management of BCC in the 'difficult-to-treat' areas of the middle third of the face.

Methods

Patients with histologically confirmed BCC in the middle third of the face were enrolled in this open-label prospective study. These patients had been previously seen and examined by other practitioners (general and plastic

surgeons) and had been offered unacceptable extirpative surgery for their lesions which were either large (>15 mm. in diameter) or in the proximity of vital structures and orifices of the face.

After examination of these patients, and with their expressed consent, *Anacardium occidentale* (Linn.) cashew nut extract was applied on their lesions. The amount applied was just enough to cover each lesion.

The extract (DeBCC®) has the following ingredients:

Oil of the Pericarp of Cashew Nut
(*Anacardium occidentale*, Linn.)
Talc and water

Patients were then asked if any pain or any other sensation was experienced during the applications. To maximize the effect of the extract, patients were advised to refrain from washing the area for at least 3 hours, a period set from the authors' previous experience with the extract in the treatment of warts and moles.[7]

Patients were examined and followed-up every 7 to 14 days and extract application were repeated as long as there were any detectable lesions. Photographic documentation was done in all cases.

Only topical antibiotics were prescribed as additional treatment. Neither systemic antibiotics nor analgesics were used.

Results

Thirty-six patients with documented BCC lesions of the middle third of the face were included in this case series. The patient's age ranged from 24 to 86 years with a mean of 65 years. In 6 patients, the lesions were located proximal to the eyes. 17 of the patients had lesions about the area of the nose, 10 lesions were in the malar areas or naso-labial folds, and 3 had lesions proximal to the lips. The lesion size ranged from 7.5 – 64 mm. (mean of 26.26 mm.). Table 1 shows the site and size of each lesion.

Topical applications were done every 1-2 weeks with a range of 1 – 20 total applications and a mean of 7 applications. Two patients needed only one application. These 2 patients had 19 and 29 mm lesions. Anesthetics were not used in any of the applications. Mild tingling sensations were recorded in all of the 36 patients during the application procedure and were assessed to be tolerable in all occasions. No additional complaints were recorded in between treatment sessions. Scarring was minimal with no skin contracture in any of the patients. Table 2 presents the number of treatment sessions and the length of follow-up done on each patient.

Sixteen patients completed the planned 5 - year follow-up. During the follow-up period, which ranged from 5 – 60 months (mean of 38.72 months), there were no detectable signs of the BCC in all of the patients. Examination of all the photographic documentations likewise confirms this.

Table 1. Site and size of the lesions

Patient	Site of the Lesion	Size (mm)
1	left upper face; very near left eye	19
2	right side of nose	32
3	right side of face	15
4	left upper nose; near left eye	17
5	midline nose	36
6	right side of the face	64
7	tip of the nose	22
8	midline nose; between eyes	24
9	midline nose; between eyes	30
10	left side of the nose	36
11	midline nose; between eyes	20
12	left lateral area of left eye brow	36
13	left upper face; very near left eye	56
14	right side of the face	30
15	medial canthus, L eye	7.5
16	midline nose; tip of nose	30
17	R malar area, beneath R eye	20
18	L ala of the nose	17
19	L upper lip	19
20	medial canthus, R eye	16
21	R malar area	30
22	L upper lip	24
23	Lateral canthus, L eye	22
24	L ala of the nose	20
25	L ala of the nose	60
26	R side of the nose	33
27	Bridge of the nose	13
28	L malar area	20
29	L naso-labial fold	17
30	Area, lateral to the R eye	14
31	R ala of the nose	30
32	L naso-labial fold	25
33	R ala of the nose	20
34	L upper lip	23
35	L naso-labial fold	25
36	L side of the nose	23

Figures 1-4 shows before and after pictures of two patients treated with the topical cashew extract.

No recurrences have been detected in any of the patients. A follow-up period of five years post-treatment is planned for all patients.

No additional biopsies were done during and after the treatment period.

Discussion

BCC is a slow-growing, locally invasive malignant epidermal tumor which mainly attacks Caucasians. It tends to infiltrate tissues in a three-dimensional contiguous fashion through the irregular growth of sub-clinical finger-like outgrowths.[10] Metastasis is extremely rare,[11] and the morbidity associated with BCC is related to local tissue invasion and destruction, particularly in the head and neck. The complications are magnified when the lesion occurs in the face, particularly if located near the orifices of the eyes, nose, ears and mouth.

Table 2. Number of topical applications and follow-up

Patient	Number of Treatment Sessions	Post-Treatment Follow-up (months)
1	5.00	60.00
2	7.00	60.00
3	7.00	60.00
4	7.00	60.00
5	7.00	60.00
6	7.00	60.00
7	9.00	60.00
8	9.00	60.00
9	7.00	60.00
10	9.00	60.00
11	5.00	60.00
12	7.00	60.00
13	10.00	60.00
14	10.00	60.00
15	1.00	6.00
16	4.00	21.00
17	3.00	5.00
18	7.00	18.00
19	1.00	21.00
20	4.00	13.00
21	2.00	15.00
22	3.00	60.00
23	4.00	24.00
24	3.00	31.00
25	12.00	42.00
26	6.00	20.00
27	2.00	30.00
28	4.00	40.00
29	1.00	27.00
30	3.00	60.00
31	20.00	36.00
32	8.00	26.00
33	8.00	31.00
34	10.00	12.00
35	16.00	11.00
36	5.00	5.00

According to Telfer and his associates, in the "Guidelines for the management of basal cell carcinoma", the treatment of BCC is based upon a clinical diagnosis.[12] However, where clinical doubt exists, or when patients are referred for specialized forms of treatment, a pre-operative biopsy is recommended. This will also provide information on the histological sub-type of the BCC which has a direct bearing on the prognosis. [10] In this case series, all the subjects had histologic confirmation of BCC. However, no sub-type was specified in any of the reports received. All the patients in this series underwent similar treatment regimens. Tumor size[10,13-20], tumor site[14,17,21-26], tumor type and definition of tumor margins[10,15,19], growth pattern and histologic subtype[10,15,27-29], failure of previous treatment[10,18,30-36], and immuno-compromised status[37], are among the proven factors affecting prognosis.

Once the lesion had been assessed, the most appropriate treatment options should be considered. Patients reluctant to consider any form of surgical treatment are usually referred for radiotherapy. Similarly, co-existing medical conditions or medications may influence the choice for treatment. Not all BCC's require treatment, and aggressive treatment might be inappropriate for patients of advanced age or poor general health, especially for asymptomatic low-risk lesions that are unlikely to cause significant morbidity.[12] Local availability of various specialized services, together with the experience and preferences of the specialist managing the case are also factors which may influence the selection of therapy. Above all, if possible, cure or eradication of the disease with no recurrence is the objective. However, the selected therapy must also be accompanied by the least complications. The best cosmetic result is understandably the foremost consideration for most patients. And considering that BCC is a relatively 'benign' malignancy, consideration of best cosmesis should be one of the objectives of the managing specialist as well.

Various surgical techniques are currently available in the developed countries and could be classified into two categories namely destructive and excisional. Among the destructive procedures (utilizing tissue destruction), **curettage and cautery/ electrodessication** is the most popular. The reported 5-year cure rates of these procedures is about 97%.[13] However, this method is not recommended for the management of tumors in facial sites such as the nose, nasolabial folds and around the eyes.[14,22,23,31,38,39] **Cryosurgery** had also been utilized for BCC, but large reviews emphasize careful patient selection of appropriate lesions with non-aggressive histology away from the critical facial sites as well.[39-42] **Carbon dioxide laser** is not as widely used as the other destructive procedures and there is little published data to date. Combined with curettage, this method had been shown to have good results with large lesions.[43-44]

The primary objective of **excisional surgery** of previously untreated (primary) lesions is to remove the tumor entirely with a peripheral margin of normal tissue. By and large, the rate of complete excision of the tumor depends on the peripheral surgical margins: 66% for 3 mm. margin, 82% for 5 mm. margin, and >95% for 13-15 mm. margin.[20]

Mohs' micrographic surgery (MMS) offers the best approach for a highly accurate yet conservative excision of BCC.[45-51]This method is specifically indicated in sites such as the periphery of the eyes, ears, lips, nose and nasolabial folds.[48-49] However, MMS is relatively expensive and undoubtedly time-consuming compared to the other outpatient-based treatment.

The inadequacy of acceptability of the surgical interventions gave rise to the various non-surgical techniques. **Radiotherapy (RT)** is an extremely useful form of treatment,[20,26,52] but faces the same problem of accurately identifying tumor margins. In a review of all studies published from 1947 to 1988, the overall 5-year cure rate of primary BCC treated with RT alone is 91.3%.[53]

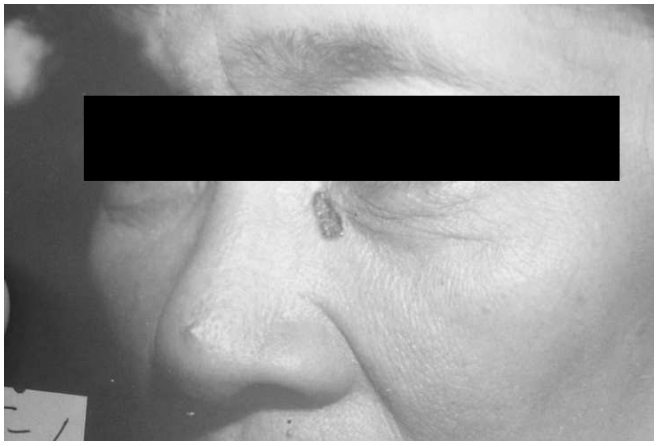

Figure 1. Patient with Basal Cell Carcinoma, before DeBCC treatment

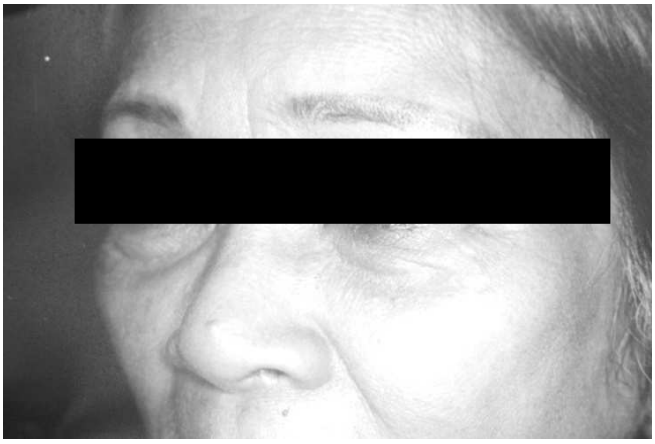

Figure 2. Same patient as in Figure 1 after DeBCC treatment

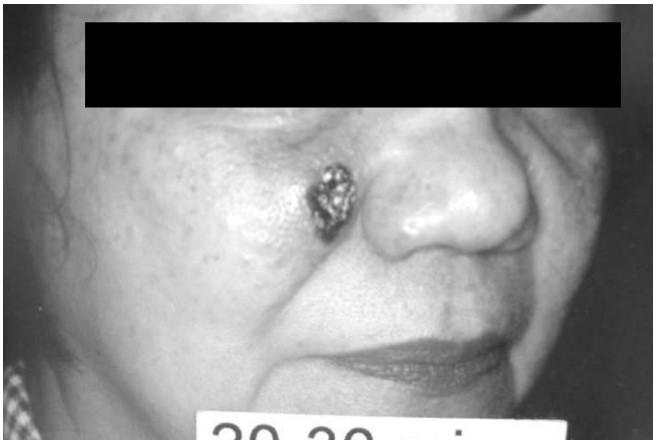

Figure 3. Another patient with Basal Cell Carcinoma before DeBCC treatment

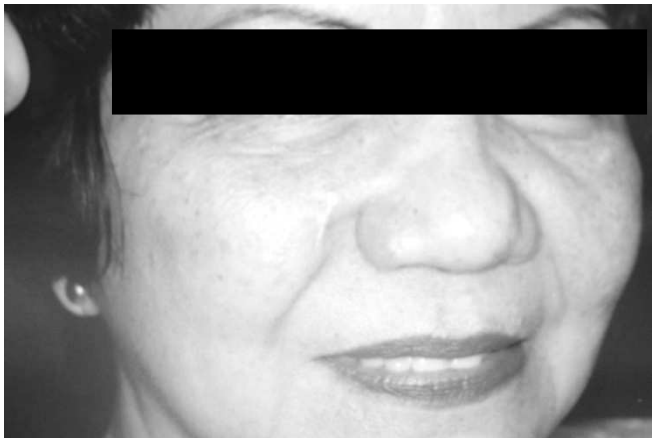

Figure 4. Patient in Figure 3 after DeBCC treatment

Intralesional interferon (using human recombinant interferon α 2), **photodynamic therapy** and **oral retinoid therapy** are essentially in the investigative phase and not widely available even in developed countries.

The obvious advantages of topical treatment in patients with contraindications for surgery and with lesions not entirely amenable to extirpative excision has brought to fore the use of these options. Topical therapy in the form of **5-flourouracil (5FU)** had been used for low-risk, extrafacial BCC with unexciting results.[54] **Imiquimod** (an immune response modifier) 5% cream had been used alone and as adjunct to MMS for the treatment of BCC and have reported regression but not complete eradication of the tumor.[55-57] Topical **neomycin** was also reported to cause regression in one case.[58]

The oil of the pericarp of *Anacardium occidentale* (Linn.) had long been used by Filipino herbalist as a strong escharotic. Developed into a cream by Inventor Rolando C. dela Cruz, its use in the removal of warts and moles, although unpublished, had been documented in at least 3 articles.[7-9] Presented in several local and international forums, both the Dewart® and Demole® have garnered several awards. Its use in BCC was first attempted at the insistence of a patient with a large lesion at the medial aspect of the left eyebrow. With a favorable result in this case, the prospective case series was then conducted.

In this prospective case series, remission was 100% after a mean treatment period of 8 weeks. Although, a usual follow-up of 5 years post-therapy is recommended[12], the initial findings, with more than 2 years post-treatment, is encouraging. In a review of published articles from 1947 to 1989, primary BCC treated with a variety of modalities, one-third of all recurrences occurred within the first year after treatment, and 50% occurred within 2 years post-treatment.[53]

The ease and the acceptability of treatment, coupled with the relatively low side effects noted in this series, magnifies the advantage of this topical option.

Conclusion and Recommendations

Anacardium occidentale (Linn.) cashew extract (DeBCC®) presents a viable and acceptable treatment option in the treatment of primary BCC. The importance of this treatment option could be stressed in patients with lesions not amenable to the prescribed wide margin of resection presented by surgery. This option may also be useful for patients with contraindications for surgery due to advanced age or presence of co-existent diseases.

Follow-up of the patients in this series is planned until 5 years post-treatment to determine the recurrence rate with this novel treatment. Even with encouraging efficacy, further studies, particularly to determine the active ingredient of the extract may be necessary to determine its mechanism of action and true clinical effectiveness.

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