

Supergiant pigmented basal cell carcinoma leading to eyeball destruction: A case report

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Received: 15 March 2024; Accepted: 17 March 2023; Published: 20 March 2024

Citation: Alshami MA, Alshami AM, Alshami HM. Supergiant pigmented basal cell carcinoma leading to eyeball destruction: A case report. AJMCRR 2024; 3(3): 1-6.

Keywords: basal cell carcinoma, eyeball damage, giant basal cell carcinoma, locally aggressive, pigmented

Introduction

Basal cell carcinomas (BCCs) arising in the basal layer of the epidermis and adnexal structures are the most common cancers in humans.¹ Clinically, BCCs typically appear on sun-exposed skin, particularly the face and neck.² Chronic sun exposure (UVB > UVA) is the most common risk factor for BCC development. Most BCCs are slow-growing and have low metastatic potential, but are locally invasive and destructive with respect to surrounding tissues.²

BCCs are increasing in incidence, accounting for approximately 70%–80% of all cutaneous carcinomas.³ BCC and squamous cell carcinoma (SCC) are the two most common subtypes of keratinocyte carcinomas (KCs) that affect fair-skinned individuals. KCs are the most common neoplasms world-

wide, with approximately 80% of KC cases attributed to BCCs and 20% to SCCs.³ The BCC mortality rate is low, whereas SCC has a higher metastatic rate—estimated at 0.5%–16.0%—and therefore a higher associated mortality rate.

Histological BCC subtypes can be characterized based on different anatomical distributions. Under rare conditions (< 0.5% of all cases) tumors are ≥ 5 cm in diameter, and these are called giant BCCs (GBCCs). Even rarer are so-called “supergiant BCCs” (SGBCCs), which are ≥ 20 cm in diameter. BCC management depends on tumor growth pattern, size, and location. Many surgical and non-surgical treatment options are available. Associated costs can substantially burden patients and the healthcare system; therefore, costs are an essential consideration in BCC treatment planning.⁴

Case report

An 80-year-old woman presented at the clinic with a 15-year history of a slow-growing lesion on the right side of the head and face. The lesion had begun as a small papule in the right temporal region, and eventually ulcerated. The ulcer had begun to gradually increase in size 5 years prior to the current presentation, at which point she had sought traditional and herbal remedies.

Clinical examination revealed a 26 × 19-cm ulcerated plaque, with central scarring, focal serohemorrhagic crusts, and thread-like, raised, hyperpigmented borders on the right side of the head, forehead, and face (Fig. 1a, 1b).



Figure 1a: Frontal view. Large ulcer destroying the right globe, with serohemorrhagic crusts and elevated rolled pigmented borders.



Figure 1b: Lateral view of a 26 x 19 cm ulcer with pigmented rolled borders, destroying the right globe, and extending to the occipital region.

Complete destruction of the right eye was evident, but computed tomography indicated no cerebral invasion (Fig. 2a, 2b). A 4-mm punch biopsy from the pigmented, rolled margin of the lesion in the temporal area confirmed a diagnosis of pigmented BCC. A literature search yielded only 20 cases of eye destruction caused by BCC, of which only three were caused by SGBCC.

TCA: trichloroacetic acid

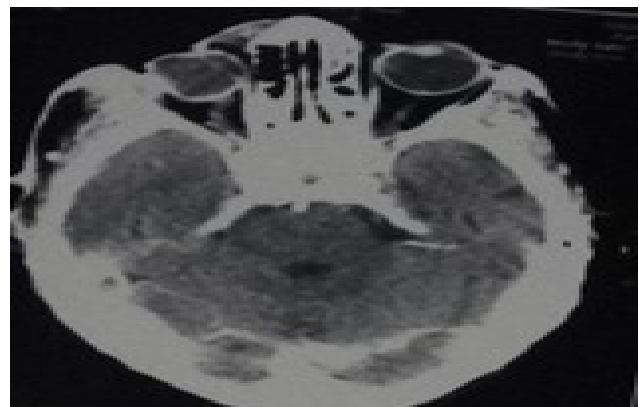


Figure 2a: Axial view of skull computed tomography. The right globe is deformed, and the optic nerve is distended, compared to left globe.

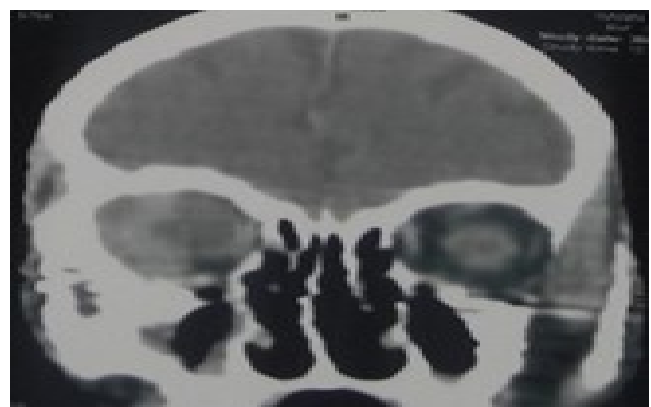


Figure 2b: Coronal view of skull computed tomography. The right orbit is replaced by a homogeneous structure, unlike on the left side.

The present case is the first described report of pigmented SGBCC that destroyed the globe, because previously reported cases were not pigmented (Table 1).

Com-ment	Type of BCC	duration	size	Region	side	number	Age,sex	country	journal	Title	1 st author	Date
		5Y		Face	R	1	80YF	USA	Henry Ford Hosp. Med. J	Extensive Morphea-Form Basal Cell Carcinoma Invasion of the Iris and the Orbital Content	Barsky D	1987
		3Y	4x3	Orbit	R	1	100YF	Korea	Jpn J Ophthalmol	Extensive destruction of the eyeball by invasion of basal cell carcinoma of the eyelid	Jeong S	1999
	pigmented	13Y	9X7 X7	Orbital,frontal,nasal	M	1	70YM	Japan	Scand J Plast Reconstr Surg Hand Surg	Giant basal cell carcinoma. improvement in the quality of life after extensive resection	Takemoto S	2003
Autopsy		15Y	20x30	Parieto-temporal	L	1	57YF	USA	J Am Acad Dermatol	Lethal basal cell carcinoma secondary to cerebral invasion	Kovarik CL	2005
		4Y	3X4	Orbit	R	1	58YM	UK	Optometry	Destruction of the orbit and globe by recurrence of basal cell carcinoma	Chew R	2007
		20Y	12X10	Orbital	L	1	61YM	India	J Plast Reconstr Aesthet Surg	Horrifying giant basal cell carcinoma of the face. A case report	Nambi GI	2008
		5Y	10X8	Orbital	R	1	83YF	Romania	ARS Medica Tomitana	Basal Cell Carcinoma Aggressiveness, Molecular Factors And Therapy. A Clinician Perspective	Dorobanțu D	2012
		12Y	3.5X2.5	Eyelids	B	1	82YM	USA	Dermatol Surg	Orbital invasion by periocular infiltrating Basal cell carcinoma	Zeitouni NC	2012
		?	4X4	Orbit	R	1	72YF	India	Int J Head and Neck Surg	Advanced Case of Invasive Basal Cell Carcinoma with Extensive Ocular Myiasis	Naik SM	2013

		4Y	8X5	Orbital	L	1	55YF	Iran	J Arthro- pod Borne Dis	A Case of Secondary Ophthal- momyiasis Caused by Chrysomy a bezziana (Diptera. Calliphori- dae)	Berenji F	201 4
		12Y	9X7	Orbit	L	1	59YF	Iran	J Cranio- max Res	Giant basal cell carci- noma of the face	Abbasi AJ	201 4
		3Y	5.2X 4.4	Orbit	R	1	70YF	Mo- rocco	Pan Afr Med J	Giant basal cell carci- noma of the eyelid. a case history	Fetohi M	201 6
	3Y	5X4 X4	7X7 X8	Orbital	R	2	78YF, 52YM	China	Medicine (Baltimore)	Case re- port repair- ing orbital skin de- fects using composite flaps af- ter giant ey- elid- derived tumor excision and orbital exentera- tion	Fan B	201 7
		5Y	3.4X 2.5	Orbit	L	1	59YF	Po- land	Pol Otorhi- nolaryngol Rev	Basal cell carcinoma of the facial skin penetrating to the orbit – case report	Czesak M	201 7
		10Y	3X4	Orbit	R	1	103Y M	Bul- garia	Open Ac- cess Maced J Med Sci	Locally Advanced Basal Cell Carcinoma with Intra- ocular Invasion	Tchernev G	201 8
		15Y	22x1 5	Or- bit,cheek,temporal,f rontal	R	1	60YF	USA	Cutis	Locally Destruc- tive Meta- static Basal Cell Carcinoma	Tillman E	201 9
			15X 1	Fronto-orbital	R	1	65YM	Ro- mani a	Rom J Ophthal- mol	Complex reconstruc- tion of the orbitofron- tal regions using three regional flaps after orbital exentera- tion for the treatment of basal cell carci- noma	Bejinariu CG	202 0
		11Y	21x1 6	Fore- head,parietal,tempo ral	L	1	52YM	USA	BMJ Case Rep	Aggressive progres- sion of a facial super giant basal cell carcinoma	Yoham AL	202 1
Radi- ology		15Y	?	Orbital	R	1	56YF	Slo- venia	Euro-rad	Extensive Periocular Basal Cell Carcinoma (BCC)	Skok T	202 2

		5Y		Face	R	1	80YF	USA	Henry	Extensive Morphea-Form Basa	Barsky D	1987
		3Y	4x3	Orbit	R	1	100YF	Korea	Jpn J	Extensive destruction of the eye	Jeong S	1999
	pigmented	13Y	9X7X7	Orbital, fronto-orb	M	1	70YM	Japan	Scand J	Giant basal cell carcinoma. Impairment of vision	Takemoto	2003
Autopsy		15Y	20x30	Parieto-temporal	L	1	57YF	USA	J Am Acad Dermatol	Lethal basal cell carcinoma secondary to orbital invasion	Kovarik CL	2005
		4Y	3X4	Orbit	R	1	58YM	UK	Optom	Destruction of the orbit and globe	Chew R	2007
		20Y	12X10	Orbital	L	1	61YM	India	J Plas Reconstr Surg	Horrifying giant basal cell carcinoma of the orbit	Nambi GI	2008
		5Y	10X8	Orbital	R	1	83YF	Romania	ARS M	Basal Cell Carcinoma Aggressive	Dorobantu	2012
		12Y	3.5X2.5	Eyelids	B	1	82YM	USA	Dermatol Surg	Orbital invasion by periocular invasive basal cell carcinoma	Zeitouni NK	2012
		?	4X4	Orbit	R	1	72YF	India	Int J Healthc Adv Res	Advanced Case of Invasive Basal Cell Carcinoma of the Orbit	Naik SM	2013
		4Y	8X5	Orbital	L	1	55TF	Iran	J Arthroplasty	A Case of Secondary Ophthalmic Involvement of Basal Cell Carcinoma	Berenji F	2014
		12Y	9X7	Orbit	L	1	59YF	Iran	J Craniomaxillofac Surg	Giant basal cell carcinoma of the orbit	Abbasi AJ	2014
		3Y	5.2X4.4	Orbit	R	1	70YF	Morocco	Pan Afr J Clin Exp Dermatol	Giant basal cell carcinoma of the orbit	Fetohi M	2016
	3Y	5X4X4	7X7X8	Orbital	R	2	78YF, 5	China	Medic Res J	Case report repairing orbital skin defect	Fan B	2017
		5Y	3.4X2.5	Orbit	L	1	59YF	Poland	Pol Otolaryngol Rhinol Laryngol	Basal cell carcinoma of the face	Czesak M	2017
		10Y	3X4	Orbit	R	1	103YM	Bulgaria	Open Access Maced J Med Sci	Locally Advanced Basal Cell Carcinoma of the Orbit	Tchernev C	2018
		15Y	22x15	Orbit, cheek	R	1	60YF	USA	Cutis	Locally Destructive Metastatic Basal Cell Carcinoma of the Orbit	Tillman E	2019
			15X1	Fronto-orbital	R	1	65YM	Romania	Rom J Dermatol	Complex reconstruction of the orbit	Bejinariu C	2020
		11Y	21x16	Forehead, orbit	L	1	52YM	USA	BMJ Case Rep	Aggressive progression of a facial basal cell carcinoma	Yoham AL	2021
Radiology		15Y	?	Orbital	R	1	56YF	Slovenia	Eur Radiol	Extensive Periocular Basal Cell Carcinoma	Skok T	2022

Table 1: Summary of reported cases of BCC destroying the eyeball.

Due to the patient's advanced age and financial situation, invasive surgery and expensive modalities such as smoothed inhibitors were not viable options. She was therefore treated with electrodesiccation plus a trichloroacetic acid (TCA) 30% chemical peel, and after 2 weeks was put on topical 5-fluorouracil and imiquimod. Moderate regression of the lesion and flattening of the borders were evident at a 2.5-month follow-up visit (Fig. 1c, 1d).



Figure 1c: Fronto-lateral view 77 days after TCA-chemical peel, and topical fluorouracil and



Figure 1d: Seventy-seven days after TCA-chemical peel, and topical fluorouracil and imiquimod administration. Improvement is visible as scarring, and flattening of the borders.

Discussion

The prevalence of cutaneous neoplasms has recently been increasing. KCs (including BCCs and SCCs) are the most common, with BCCs accounting for 75% of all cases recorded in Europe.⁵ BCC has low metastatic potential and a low mortality rate of < 0.1%, which increases to 6.5% for tumors

≥ 2 cm in size. Reported incidences of metastatic BCC range from 0.00281%–0.05%, and the estimated age-adjusted mortality rate is 0.12 per 100,000 population. Neglected BCC can cause marked morbidity via local tissue invasion however, which can result in considerable functional and cosmetic problems, especially on the face.

When treating primary BCCs the initial goal is complete removal via conventional surgery, Mohs micrographic surgery, and cryosurgery, or electrodesiccation and curettage. Nonsurgical modalities include topical application of fluorouracil and/or imiquimod, photodynamic therapy, or radiation therapy. The more expensive “smoothened inhibitors” have recently been approved for treating metastatic or locally advanced BCCs, leading to impressive tumor shrinkage. Because neither sophisticated methods nor expensive drugs were viable options for the current patient, we used cheaper but nonetheless effective methods; electrodesiccation, TCA peel, topical 5-fluorouracil, and imiquimod.

In conclusion, this is the first reported case of pigmented SGBCC destroying the eyeball due to neglect. The case emphasizes the need for patient education about the potential results of neglect, and indicates that in cases of SGBCC a variety of treatment plans should be offered to patients, with due consideration of their financial means.

Conflicts of interest statement

Running head: Eyeball destruction in basal cell carcinoma

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