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Evisceration in Unsuspected Intraocular Tumors

Enucleation and evisceration are the 2 possible surgical management op-
tions for a disfigured or a painful blind eye.1-3 Evisceration is replac-
ing enucleation as the favored surgical option because of its potential ad-

vantages such as superior cosmesis, better prostheses motility, and fewer
implant-related complications.1-3 Evisceration, however, is absolutely
contraindicated in suspected intra-
ocular malignancy. Before the avail-
ability of modern imaging tech-
niques, 10% of blind, painful eyes
with opaque media were found to
contain unsuspected malignant tu-
mors on histopathologic examina-
tion.3,4 Although rare, pathologists
continue to encounter clinically un-
suspected intraocular tumors dur-
ing histopathologic examination of
eviscerated eyes. Several anecdotal
studies of unsuspected tumors found
after evisceration exist.4,13 Although
these articles include cases of carci-
nomata of the nonpigmented ciliary
epithelium, adenocarcinoma of the
retinal pigment epithelium, choroi-
dal lymphoma, choroidal ganglio-
neuroma, spindle cell neoplasm, ana-
plastic tumor, and retinoblastoma,
uveal melanoma predominates. Eagle
et al13 recently described a series of
7 additional cases of unsuspected
uveal melanoma diagnosed in evis-
cerated specimens and have empha-
sized the role of detailed a medical
history, clinical evaluation, and ap-
propriate imaging before perform-
ing evisceration in painful blind
eyes with opaque media. Our series
comprises 6 cases of unsuspected in-
traocular tumors diagnosed following
evisceration and elaborates on the
lessons learned from this experience.

Methods. This is a retrospective, non-
randomized, clinicopathological case
series of patients with previously un-
suspected intraocular tumors diag-
nosed by histopathology of eviscer-
ated blind eyes. The cases were
recorded subsequent to the indexed
ocular pathology registry from Janu-
ary 1998 to December 2007 at a ter-
tiary care center in southern India. The medical records were reviewed
for patient age, sex, symptoms, ini-
tial clinical findings, initial clinical
diagnosis, imaging, prior treatment,
indication for evisceration, intra-
operative findings, histopathology,
postevisceration management, and fi-
nal outcome for local tumor recur-
rence and systemic metastasis.

Results. We identified 6 patients with
unsuspected intraocular tumors who
had undergone evisceration (Table).
The median patient age was 18 years
(range, 8-70 years; mean [SD],
27.17[22.46] years), and 5 were male.
Preoperative ultrasound B-scan was
available for 3 patients; a review of the
documented images showed no ob-
vious intraocular mass in 2 patients.
A preoperative computed tomog-
raphic scan in one patient did not re-
veal an intraocular mass. Indica-
tions for evisceration included a
painful blind eye in 4 patients, cos-
metic concern in 1 patient, and a
perforated hypotonus eye with uveal pro-
lapse in 1 patient. No surgeons had
recorded unusual features of intra-
ocular contents observed during evis-
ceration. Eviscerated tissue was not
submitted for histopathology in 2 pa-
tients. Histopathology of the eviscer-
ated tissue or biopsy from the re-
current orbital tumor revealed retinoblastoma in 2 patients, and 1
each of uveal melanoma, adenocar-
cinoma of the ciliary body, choroi-
dal ganglioneuroma, and conjuncti-
val squamous cell carcinoma with
intraocular invasion. Orbital exen-
teration was eventually required to
treat 4 of these patients. Two pa-
tients with retinoblastoma were
treated with high-dose chemother-

y, orbital exenteration, and ex-
ternal beam radiotherapy. The pa-
tient with uveal melanoma had orbital
exenteration and external beam ra-
diotherapy. Adenocarcinoma of the
ciliary body was managed with enucleation and external beam radio-
therapy. The patient with benign cho-
roidal ganglioneuroma was ob-

served. The patient with intraocular
invasion of conjunctival squamous

cell carcinoma had orbital exentera-
tion. All of the patients were free of
local recurrence or systemic metas-
tasis at a median follow-up of 28
months (range, 4-41 months; mean
[SD], 24.50[14.90] months).

Report of Cases. Case 1. A systemi-
cally healthy and active 3-year-old
boy presented to the glaucoma clinic
in June 2001 with spontaneous pro-
gressive enlargement of the left eye
during a 2 years duration. There was no his-
tory of prior trauma or surgery. Find-
ings of the examination of right eye
were essentially normal. The child
had no light perception in the left eye.
There was ciliary staphyloma, diffu-
sive corneal edema, dilated fixed
pupil, aphakia, and an intraocular
pressure of 34 mm Hg by Perkins ap-
planation tonometry under anesthe-
sia. The fundus view was unclear. Ul-
trasound B-scan showed an increase
in the axial length, a clear vitreous
cavity, and optic disc cupping
(Figure 1A). There was no evi-
dence of subluxation of the crystal-
line lens or an intraocular mass. An
immersion ultrasound B-scan, how-
ever, was not done. The glaucoma
specialist referred pediatric diode laser transscleral cyclopho-
coagulation to control the intraocu-
lar pressure. The child had periodic
follow-up at the glaucoma clinic
thereafter. The child reported se-
vere pain in the left eye in January
2005 and had evisceration by a pe-
diatric ophthalmologist. A repeated
ultrasound B-scan of the eye was not
performed before evisceration. His-
topathology of the eviscerated tis-
uce showed a malignant round cell
tumor with areas of necrosis and cal-

cification, based on which a diagno-
sis of retinoblastoma was made
(Figure 1, B and C), and the child was
referred to the ocular oncology ser-
vice. A computed tomographic scan
did not reveal optic nerve invasion or
orbital extension (Figure 1D). There
was no evidence of systemic metas-
tasis. Results of bone marrow bi-
opsy and cerebrospinal fluid cytolog-
Table. Clinical Profile of 6 Patients Who Had Evisceration With Unsuspected Intraocular Tumor

<table>
<thead>
<tr>
<th>Sex/ Age, y</th>
<th>Imaging</th>
<th>Initial Clinical Diagnosis</th>
<th>Initial Clinical Management Prior to Evisceration</th>
<th>Indication for Evisceration</th>
<th>Final Histopathological Diagnosis</th>
<th>Final Management</th>
<th>Follow-up, mo</th>
<th>Final Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/8</td>
<td>USG: anechoic, no mass</td>
<td>Staphyloma, secondary glaucoma</td>
<td>TSCPC, medical management of glaucoma</td>
<td>Painful blind eye</td>
<td>Retinoblastoma</td>
<td>Chemotherapy, orbital exenteration, EBRT</td>
<td>41</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
<tr>
<td>M/8</td>
<td>Not performed</td>
<td>Secondary glaucoma after trauma</td>
<td>None</td>
<td>Painful blind eye</td>
<td>Orbital recurrence of retinoblastoma</td>
<td>Chemotherapy, orbital exenteration, EBRT</td>
<td>36</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
<tr>
<td>M/41</td>
<td>USG: intraocular mass with low internal reflectivity suggestive of uveal melanoma</td>
<td>Uveal melanoma</td>
<td>None</td>
<td>Painful blind eye</td>
<td>Orbital recurrence of uveal melanoma</td>
<td>Orbital exenteration</td>
<td>10</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
<tr>
<td>F/70</td>
<td>USG: closed funnel retinal detachment, no mass</td>
<td>Retinal detachment with secondary glaucoma</td>
<td>Trabeculectomy, medical management of glaucoma</td>
<td>Painful blind eye</td>
<td>Primary adenocarcinoma of the ciliary body</td>
<td>Enucleation, EBRT</td>
<td>23</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
<tr>
<td>M/11</td>
<td>CT: enlarged eyeball, no mass</td>
<td>Neurofibromatosis type 1, developmental glaucoma</td>
<td>Trabeculectomy, medical management of glaucoma</td>
<td>Hypotonic eye with scleral necrosis and prolapse of uveal tissue</td>
<td>Choroidal ganglioneuroma</td>
<td>Observation</td>
<td>33</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
<tr>
<td>M/25</td>
<td>Not performed</td>
<td>Necrotizing scleritis</td>
<td>Excision of epibulbar mass, medical management of necrotizing scleritis</td>
<td></td>
<td>Squamous cell carcinoma with intraocular infiltration</td>
<td>Orbital exenteration</td>
<td>4</td>
<td>No local recurrence or systemic metastasis</td>
</tr>
</tbody>
</table>

Abbreviations: CT, computed tomographic scan; EBRT, external beam radiotherapy; TSCPC, transscleral cyclophotocoagulation; USG, ultrasound B-scan.

*a The USG and information about the diagnosis of uveal melanoma were not available to the ophthalmologist who performed evisceration.

*b Eviscerated tissue was not submitted for histopathology; diagnosis was confirmed by biopsy of the recurrent orbital tumor.

ogy were normal. The child was given high-dose chemotherapy with a combination of carboplatin, vincristine, and etoposide for 3 cycles, followed by eyelid-sparing orbital exenteration (Figure 1E), 4500-cGy (to convert gray to rad, multiply by 100) fractionated external beam radiotherapy to the orbit, and continued chemotherapy for 12 cycles. The child is alive and well, with no local recurrence or systemic metastasis 41 months after completion of treatment (Figure 1F).

Case 2. An 8-year-old boy had undergone evisceration elsewhere with a history of painful blind right eye following trauma and a clinical diagnosis of secondary glaucoma. Imaging had not been performed before evisceration. Eviscerated tissue had not been submitted for histopathology by the comprehensive ophthalmologist who had performed the surgery. The child developed a painful, rapidly growing orbital mass 2 months following evisceration ([Figure 2A]) and was referred to our oculoncology service. A computed tomographic scan showed a large orbital mass with specks of intralesional calcification, suggestive of orbital recurrence of retinoblastoma (Figure 2B). Incisional biopsy of the orbital mass confirmed the diagnosis of retinoblastoma ([Figure 2C]). There was no evidence of systemic metastasis. Results of bone marrow biopsy and cerebrospinal fluid cytology were normal. The child received high-dose chemotherapy with a combination of carboplatin, etoposide, and vincristine for 3 cycles (Figure 2, D and E), followed by an eyelid-sparing orbital exenteration, 4500-cGy fractionated external beam radiotherapy to the orbit, and continued chemotherapy for 12 cycles. The child had no local recurrence or systemic metastasis at 36 months following completion of treatment.

Case 3. A 41-year-old man presented with a painful, blind right eye of 3 months’ duration. The right eye had no light perception. The anterior segment showed features of secondary angle-closure glaucoma and complicated cataract. Opaque media precluded fundus view. Ultrasound B-scan showed a large ciliochoroidal mass with low internal reflectivity ([Figure 3A]). The mass filled the vitreous cavity. Enucleation was advised with the clinical suspicion of a uveal melanoma. The patient was subsequently lost to follow-up. He developed severe pain 1 month later and consulted a comprehensive ophthalmologist elsewhere. The ophthalmologist, who was unaware of prior imaging and clinical diagnosis, pro-
ceded with evisceration of the painful blind eye but did not submit eviscerated tissue for histopathology. Six months later, the patient developed an orbital mass (Figure 3B) and was referred to our ocular oncology service. A computed tomographic scan showed a large, isodense orbital mass suggestive of orbital recurrence of uveal melanoma. Systemic evaluation did not reveal any metastasis. The patient had an eyelid-sparing orbital exenteration. Histopathology confirmed the diagnosis of melanoma (Figure 3C). The patient received 6500-cGy fractionated orbital external beam radiotherapy. He was alive and well at last visit, 10 months after treatment, with no local recurrence or systemic metastasis.

Case 4. A systemically healthy 70-year-old with a history of severe pain and loss of vision in the right eye of 15 years’ duration was seen by us. She had earlier undergone cataract surgery, followed by trabeculectomy elsewhere about 10 years ago. She had
enucleation and 4500-cGy fractionation. The patient was further treated with oral azathioprine. However, his vision deteriorated, and he underwent excision of a growth on the surface of the eye. Histopathology of the excised specimen showed thickened choroid with nests of mature polygonal ganglion cells admixed with nerve fibers (Figure 6B). There was no evidence of an intraocular mass. The child was diagnosed with neurofibromatosis type 1 with developmental glaucoma, status post trabeculectomy. The child had evisceration of the disfigured left eye and debulking of the eyelid plexiform neurofibroma by an oculoplastic surgeon for cosmetic concern. Histopathology of the eviscerated tissue showed thickened choroid with nests of mature polygonal ganglion cells admixed with nerve fibers (Figure 5C), focal areas of ganglion cells, and Pacinian bodies (Figure 5D), diagnostic of choroidal ganglion neuroma. The child was observed. He showed no local tumor recurrence at the final follow-up at 33 months.

Case 6. A 25-year-old immunocompetent man with a history of recurrent redness and pain in his right eye of 6 months’ duration was seen by a cornea specialist. A year earlier, he had undergone excision of a growth on the surface of the eye, twice, at an interval of 1 month, by a comprehensive ophthalmologist. A pathologist had described the excised specimen as having nonspecific inflammation. The slides were not available for a review. His visual acuity was 20/160 OD. He had scleral necrosis, uveal prolapse, and cells in the anterior chamber. He was diagnosed with necrotizing scleritis and treated with oral prednisolone and methotrexate, and subsequently with oral azathioprine. However, his visual acuity deteriorated over the next 6 months to bare perception of light, scleral necrosis progressed, and the patient had unbearable pain (Figure 6A). The cornea specialist performed evisceration along with excision of the entire cornea, contiguous necrotic sclera, and overlying unhealthy conjunctiva. Ultrasound B-scan was not performed prior to evisceration. Histopathology showed conjunctival tumor with complete loss of polarity and surface maturation and infiltrating the contiguous sclera. The cells were large and polygonal, with prominent nuclei with desmosomal attachments between the cells (Figure 6B). There was dyskeratosis and squamous pearl formation. Sections from the eviscerated tissue showed the iris and ciliary body to be infiltrated by tumor cells (Figure 6C).

Figure 3. A 41-year-old man with orbital recurrence of melanoma following evisceration of a painful blind eye with retinal detachment and secondary glaucoma (case 3). A, Ultrasound B-scan with cross vector shows a large intraocular mass filling the entire vitreous cavity (top panel), with low internal reflectivity (bottom panel), suggestive of uveal melanoma. B, A right orbital mass was noticed 6 months following evisceration of the painful blind right eye after trabeculectomy (case 4). A, Histopathology of the eviscerated tissue shows a cellular tumor of the nonpigmented ciliary epithelium with glandular pattern (hematoxylin-eosin, original magnification ×400). B, Histopathology shows epithelial cells in a glandular pattern with a thick basement membrane, clear cytoplasm, large vesicular nucleus, and prominent nucleoli, suggestive of adenocarcinoma of the ciliary body (hematoxylin-eosin, original magnification ×400).

Figure 4. A 70-year-old woman with adenocarcinoma of the ciliary body discovered following evisceration of the painful blind right eye after trabeculectomy (case 4). A, Histopathology of the eviscerated tissue shows a cellular tumor of the nonpigmented ciliary epithelium with glandular pattern (hematoxylin-eosin, original magnification ×100). B, Histopathology shows epithelial cells in a glandular pattern with a thick basement membrane, clear cytoplasm, large vesicular nucleus, and prominent nucleoli, suggestive of adenocarcinoma of the ciliary body (hematoxylin-eosin, original magnification ×400).
A diagnosis of squamous carcinoma of the conjunctiva with intraocular invasion was made. The patient was subsequently referred to our ocular oncology service. Clinical evaluation revealed diffuse residual conjunctival tumor. Regional lymph nodes were not involved, and the systemic evaluation did not reveal metastasis. The patient had an eyelid-sparing orbital exenteration. Histopathology confirmed the presence of a residual conjunctival tumor. Four months after completion of treatment, the patient was alive and well, with no local recurrence or systemic metastasis.

Comment. Evisceration has replaced traditional enucleation as the favored surgical option for patients with blind disfigured or painful eyes. However, controversy regarding the advantages and disadvantages of each procedure continues. Potential advantages of evisceration over enucleation include ease of surgery, better implant and prosthesis motility, preservation of orbital anatomy resulting in fewer complications such as ptosis, socket contraction, and deep superior sulcus, and scleral barrier precluding implant migration and implant extrusion. A survey demonstrated that the overwhelming majority of ocularists...
believe current evisceration techniques result in a superior clinical outcome compared with enucleation.\textsuperscript{16} A recent comparative analysis, however, indicated that enucleation and evisceration produce functionally and aesthetically similar outcomes.\textsuperscript{14}

Two of the most dreaded complications of evisceration are sympathetic ophthalmia and evisceration of an eye with an unsuspected intraocular tumor.\textsuperscript{1,2,13} Although sympathetic ophthalmia is no longer a major concern,\textsuperscript{12} evisceration of an eye with an unsuspected intraocular tumor continues to be a potential risk.\textsuperscript{4,13} The incidence of diagnostic surprise following evisceration has been reported to be 0.62%, 1 case of unsuspected adenocarcinoma of the ciliary body in a series of 161 eviscerations over 20 years.\textsuperscript{17} Eagle et al.,\textsuperscript{18} however, believe that unsuspected intraocular tumor has been underrepresented in the literature owing to medicolegal concerns. Scheffer and Abramson\textsuperscript{19} further question if evisceration is appropriate at all in blind, painful eyes with no obvious cause and favor enucleation specifically in such situations. Our series is a collection of 6 eyes with unsuspected intraocular tumor that were eviscerated. We have attempted to highlight the lessons learned from this experience.

Cases 1 and 2 were children with retinoblastoma. Case 1 initially was seen with glaucoma and staphyloma. An ultrasound B-scan was performed, but retinoblastoma was not detected, possibly because the tumor was anterior and could have been seen only on an immersion B-scan or a computed tomographic scan. More importantly, when the child returned after 5 years with severe pain, the pediatric ophthalmologist who performed evisceration did not repeat the imaging study prior to surgery. Case 2 shows the lack of clinical acumen enough to perform imaging before evisceration in a child who had a painful blind eye, or even to submit the eviscerated tissue for histopathology.

Case 3 highlights the important aspect of paucity of communication in medical practice. This patient had evisceration despite having a prior diagnosis of uveal melanoma. Eviscerated tissue was not submitted for histopathology in this patient. He seemingly lacked a clear understanding of his clinical condition. A detailed medical report incorporating the ultrasound B-scan image could have cautioned the surgeon against performing an evisceration. Online standardized electronic medical records in the future may help make pertinent patient details available to the serial caregivers irrespective of logistic and geographic barriers.

The adenocarcinoma of the ciliary body in case 4 was not detected on ultrasound B-scan. An immersion B-scan or an ultrasound biomicroscopy would have been appropriate for this anteriorly located tumor. In case 5, a choroidal ganglioneuroma was not detected on computed tomographic scan. It is possible that an ultrasound B-scan would have been able to demonstrate a subtle choroidal mass. Case 6 had a clear history of a lesion on the ocular surface that had been excised. The histopathology report, however, was misleading, prompting the corneal specialist to consider a diagnosis of necrotizing scleritis. An ultrasound B-scan may have revealed the intraocular tumor in this case.

There are 6 possible steps to prevent evisceration surprises and their consequences: (1) a thorough clinical history and diligent examination, specifically in a blind eye with no evident cause, unusual and ill-explained clinical findings, and multiple prior surgical procedures (that modify the clinical picture); (2) appropriate imaging and its interpretation; (3) enucleation in lieu of evisceration when an intraocular tumor cannot be reliably ruled out by reasonable clinical means; (4) careful intraoperative evaluation for unusual appearance or feel of intraocular contents and modification of the surgery as appropriate; (5) routine histopathology of all eviscerated tissues; and (6) appropriate treatment if a malignant intraocular tumor is found.

Older children with retinoblastoma may manifest with atypical features simulating developmental glaucoma, staphyloma, uveitis, hypopyon, hyphema, vitreous hemorrhage, endophthalmitis, and orbital cellulites.\textsuperscript{9,18-20} A child with unusual clinical features such as these should be thoroughly evaluated. Uveal melanoma can manifest with pain and inflammation induced by necrosis and may simulate endogenous endophthalmitis or orbital cellulitis.\textsuperscript{13,18,21-24} Imaging studies must be interpreted carefully in patients who have inflammatory signs that might be caused by necrotic tumors.\textsuperscript{13} Adenocarcinoma of the ciliary body is a rare tumor and is known to occur in a phthisical eye.\textsuperscript{25} This, being an anteriorly located tumor, can be missed unless an immersion B-scan or an ultrasound biomicroscopy are performed. Choroidal ganglioneuroma in a child with neurofibromatosis type 1 teaches us to be diligent when a patient with a blind eye has an associated systemic cancer predisposition syndrome.\textsuperscript{15} Reports of ocular surface squamous neoplasia masquerading as necrotizing scleritis exist in the literature.\textsuperscript{26,27} A careful evaluation of the ocular surface for a conjunctival tumor could have helped in the diagnosis.

The role of appropriate preoperative imaging and its adequate analysis and interpretation prior to evisceration of a blind eye with opaque media cannot be overemphasized. Four patients had preoperative imaging in our series. Of 3 patients with a preoperative ultrasound B-scan, the tumor was not detectable in 2; one was a retinoblastoma in an older child, and another was an adenocarcinoma of the ciliary body. Both these tumors may have been missed on routine ultrasound B-scan because of their anterior location. A computed tomographic scan did not demonstrate the tumor in a patient with ganglioneuroma. In all, of 6 patients in our series, the surgeon did not perform or have access to preoperative imaging in 4, and images in 2 other cases were suboptimal.

While ultrasound B-scan continues to be an ideal imaging modality to diagnose intraocular tumors, it is essential that an ultrasonologist experienced in intraocular tumor imaging reports it, or the ophthalmologist either reviews the dynamic images in real time or has access to the same for remote interpretation. Ultrasound examination is incomplete without an immersion technique and/or ultrasound biomicroscopy in a case with suspected
anteriorly located tumor. Where ultrasound B-scan fails to detect an intraocular tumor, or if there is diagnostic dilemma, further evaluation by computed tomography or magnetic resonance imaging depend on the index of suspicion. However, preoperative imaging does not totally exclude the possibility of inadvertently eviscerating an eye with occult tumor. If an intraocular tumor cannot be excluded by reasonable clinical means, it may be prudent to consider enucleation in lieu of evisceration.

If an intraocular tumor is indeed missed on imaging and evisceration is performed, astute intraoperative observation, intraoperative histopathology, and appropriate modification to the surgery (conversion to enucleation or orbital exenteration) could help salvage the situation. It is surprising that no surgeons reported or documented unusual features noticed during evisceration of the 6 cases. It would be reasonable to assume that a tumor would appear and feel different than a routine evisceration. Use of illumination and magnification could help further enhance the visual clues.

Routine histopathological examination of eviscerated tissues as a standard of care could help identify tumors that are missed on clinical evaluation, imaging, and intraoperative observation. Two cases in our series did not have histopathology of the eviscerated tissues, and the tumor was detected only when it recurred in the orbit. Data indicate that only 43% of surgically removed eyes and ocular contents are sent for histopathologic investigation. Decisions to send are possibly made on a case-by-case basis and common sense rather than a blanket policy. The national specialist ophthalmic pathology service of the United Kingdom recognizes that there is insufficient reporting capacity and advises ophthalmologists to retain “current pathology specimen referral practices.” The situation may be similar in other countries as well. Logistic issues such as these may need to be adequately addressed.

Adequate management of residual or recurrent tumor following evisceration can help minimize the risk of local recurrence and systemic metastasis. Two patients with retinoblastoma in our series had chemotherapy, orbital exenteration, and external beam radiotherapy. The patient with melanoma had orbital exenteration and external beam radiotherapy. The patient with adenocarcinoma of the ciliary body had enucleation and external beam radiotherapy, while the patient with benign choroidal ganglioneuroma was observed, and the patient with squamous cell carcinoma had orbital exenteration. It is gratifying that no patients had local recurrence or systemic metastasis at the last follow-up.

We recommend that adequate caution must be exercised to follow standards of care and due dilligence to rule out an intraocular tumor before performing an evisceration in a blind eye. Based on our experience, we believe that an astute clinical evaluation, appropriate imaging and its interpretation, conversion to enucleation if an intraocular tumor cannot be clinically excluded, intraoperative inspection of intraocular contents during evisceration and modification of the surgery as appropriate, and histopathology of the eviscerated tissues can all help minimize the risk and consequences of eviscerating an eye with an occult intraocular tumor. If an eye with an occult intraocular tumor is indeed eviscerated, appropriate postevisceration management can prevent local tumor recurrence and systemic metastasis.

Suryasanta Rath, MD, FRCS
Santosh G. Honavar, MD
Milind N. Naik, MD
Roshini Gupta, MD, FRCS
Vijay A. Reddy, MD
Geeta K. Vemuganti, MD

Author Affiliations: Department of Ophthalmic Plastic Surgery, Orbit and Ocular Oncology, LV Prasad Eye Institute, Hyderabad; Department of Ophthalmic Plastic Surgery, Orbit and Ocular Oncology, LV Prasad Eye Institute, Hyderabad; Department of Ophthalmic Plastic Surgery, Orbit and Ocular Oncology, LV Prasad Eye Institute, Visakhapatnam, (Dr Gupta) India.

Correspondence: Dr Honavar, Department of Ophthalmic Plastic Surgery, Orbit and Ocular Oncology, LV Prasad Eye Institute, Banjara Hills, Hyderabad 500034, India (honavar@lvpei.org).

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20. Shields CL, Shields JA, Shah P. Retinoblas-
Invasive Orbital Basal Cell Carcinoma

Matthew T. Feng, MD; Lynn Polonski, MD

Author Affiliations: Department of Ophthalmology and Vision Science, University of Arizona (Dr Feng); and Catalina Eye Care (Dr Polonski), Tucson, Arizona.

Figure 1. Clinical appearance of a 78-year-old white man who presented with progressive left proptosis and vision loss over 2 years. His forehead lesions date back 16 years.

Figure 2. Radiologic and histologic appearance. A, Computed tomographic orbits demonstrated a 2.4 × 3.3-cm left orbital mass enveloping the optic nerve and eroding the orbital roof. B, A light micrograph (hematoxylin-eosin, original magnification ×100) shows peripheral palisading within and artifactitious separation from frontal bone marrow, consistent with invasion by basal cell carcinoma. Exenteration with wide margins included craniotomy for frontal bone invasion.