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Case Report

Surface Mold Brachytherapy for Scalp Dermatofibrosarcoma Protuberans in a Patient with Down Syndrome: A Case Report

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Abstract

Dermatofibrosarcoma protuberans (DFSP) is a rare, locally aggressive soft tissue sarcoma arising from the dermis, representing approximately 0.1% of all malignancies. Although surgical excision with wide margins remains the standard treatment, local recurrence is common, particularly in patients with close or positive margins. Adjuvant radiotherapy is therefore recommended for recurrent disease or inadequate surgical margins. We report a rare case of scalp DFSP in a patient with Down syndrome treated using high-dose-rate (HDR) surface mold brachytherapy with the aid of three-dimensional (3D) printing technology.

A 25-year-old woman with Down syndrome presented with recurrent DFSP of the right parieto-occipital scalp following an unplanned excision. Wide local resection with an occipital transposition flap and skin graft reconstruction confirmed DFSP with a deep positive margin involving the skull (R1). Owing to the curved scalp anatomy and the patient's limited cooperation related to cognitive impairment, adjuvant HDR surface mold brachytherapy was selected. Treatment planning was performed using CT simulation under sedation. A 3D-printed skull model allowed the optimization of catheter placement without the need for further resimulation. A total dose of 32.5 Gy in five fractions was delivered using an Ir-192 radioactive source.

Treatment was well tolerated, with only mild grade 1 dermatitis and partial alopecia. The irradiated tumor bed showed an initial complete response. Approximately twenty-two months later, a marginal recurrence developed at the edge of the surgical scar in the right temporal region, while the rest of the irradiated field remained free of disease. This nodule was removed by wide local excision, the multidisciplinary tumor board recommended observation, and the patient remained clinically free of recurrence at the most recent follow-up. Mild late effects included localized alopecia, hyperpigmentation, fibrosis, and thinning of the skin graft.

This case suggests that HDR surface mold brachytherapy combined with 3D printing for treatment planning can be a useful and practical adjuvant option for scalp DFSP, particularly in anatomically complex situations or patients with compliance challenges and multiple recurrences. The marginal recurrence seen here also shows that adequate coverage of the field margins and close follow-up remain important.

Keywords

Dermatofibrosarcoma Protuberans; DFSP; Brachytherapy; Down Syndrome; Radiotherapy; Soft Tissue Sarcoma; 3D Printing

How to Cite:

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Introduction

Dermatofibrosarcoma protuberans (DFSP) is a rare soft tissue sarcoma arising from the skin and accounts for approximately 0.1% of all cancers (1). It is most commonly located on the trunk, followed by the extremities and then the head and neck (2). Surgical excision is the gold standard of treatment. More than 90% of DFSP tumors carry the COL1A1-PDGFB fusion gene, which results from a t(17;22)(q22;q13) translocation, and this drives platelet-derived growth factor signaling that makes imatinib useful in unresectable, recurrent, or metastatic disease (16,18). For localized tumors, Mohs micrographic surgery is increasingly preferred over wide local excision because it decreases the local recurrence rate, while the indication for adjuvant radiotherapy follows the rules used for other soft tissue sarcomas and depends on the completeness of resection, margin status, tumor size, and grade (17,18). The local recurrence rates for DFSP are heterogeneous, ranging from 0% to 63% after surgery. While wide clear margins range from 2 to 5 cm, a 3 cm margin is widely accepted as a safe surgical resection margin in numerous cancer centers (3-7). The elevated risk of local recurrence after surgery justifies the consideration of adjuvant radiotherapy. Adjuvant radiotherapy is typically preferred for tumors with close or positive surgical margins or for recurrent disease (5, 8).

Both external beam radiotherapy and brachytherapy are recommended for the adjuvant treatment of soft tissue sarcomas.

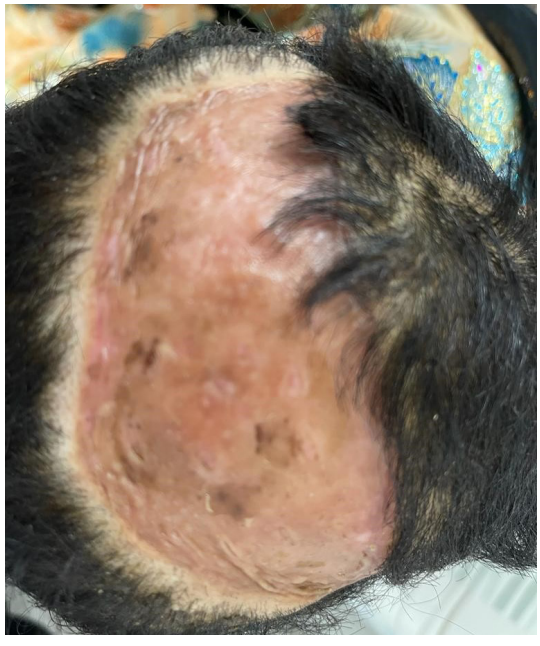


Figure 1. Clinical and operative appearance of the recurrent right parieto-occipital scalp DFSP, showing the recurrent lesion before resection, the surgical defect after wide local excision, and the reconstruction with an occipital transposition flap and split-thickness skin graft.

Multiple doses and fractionation schedules are available, depending on the tumor's location, size, and pathological features (9-11). This case report describes a scalp DFSP in a patient with Down syndrome treated with adjuvant HDR mold brachytherapy. This rare case illustrates the use of brachytherapy in the adjuvant treatment of DFSP in a patient with Down syndrome.

Case Presentation

A 25-year-old woman with Down syndrome presented with a recurrent lesion on the right parieto-occipital scalp several months after an unplanned excision of a previously undiagnosed dermatofibrosarcoma protuberans (DFSP) in June 2021. After a documented recurrence, she underwent wide local excision in 2022 of an approximately 6 cm lesion, with an occipital transposition flap and split-thickness skin graft; the deep margin was positive at the skull (R1), and adjuvant radiotherapy was recommended (Figure 1).

Given the curved surface of the scalp and the patient's limited cooperation due to cognitive impairment, surface-mold high-dose-rate (HDR) brachytherapy was selected. Sedation under anesthesia was required for both simulation and treatment. Adjuvant HDR brachytherapy was delivered to a total dose of 32.5 Gy in 5 fractions, administered from 06/06/2022 to 15/06/2022.

Treatment Planning

CT simulation with 2 mm slices was performed under sedation, using a thermoplastic mask for immobilization. The clinical target volume (CTV) was delineated on the basis of the presurgical physical examination. A 5-mm margin was added in all directions except deep to the CTV to create the planning target volume (PTV). A 1-mm margin was added to the deeper aspect to account for the underlying parieto-occipital bone. The final PTV measured 12 x 8 cm and was located in the right parieto-occipital region, with a target depth of 1 mm from the graft surface. The skin graft itself was very thin (under 1 mm), so the prescription depth was set to cover the graft and the scar bed.

Initial treatment planning involved 6 catheters in non-3D-printed mold approach, but the peer review recommended expanding to 11 for improved coverage (Figure 2). Resimulation was arranged with 11 catheters and to avoid additional CT resimulation after the number of catheters was increased, a 3D-printed mold dummy skull was fabricated using a Project MJP 3600 printer, which allowed for replanning with the additional catheters (Figure 3).

A total dose of 32.5 Gy was prescribed to the 100% isodose line, delivered in 5 fractions on alternate days, in accordance with American Brachytherapy Society guidelines (10). Treatment was delivered using a Varian Bravo after-loader with an Ir-192 source. It commenced eight weeks post-surgery and was well tolerated.

The dose was prescribed to a depth of 4 mm from the surface of the applicator, and the plan quality was checked on the dose–volume histogram. The coverage of the PTV was expressed as the volume receiving 100% of the prescription

(V100 = 65.36%), and high-dose regions were recorded as V150 = 0% and V200 = 0%. The dose homogeneity index, defined as (V100 − V150)/V100, was 1.0. The minimum dose covering 90% of the PTV (D90) was 30.5 Gy, corresponding to 94.04% of the prescription. For organs at risk, the maximum dose to the brain was 26.6 Gy, and the dose to the calvarium was 39 Gy, both of which were tolerable.

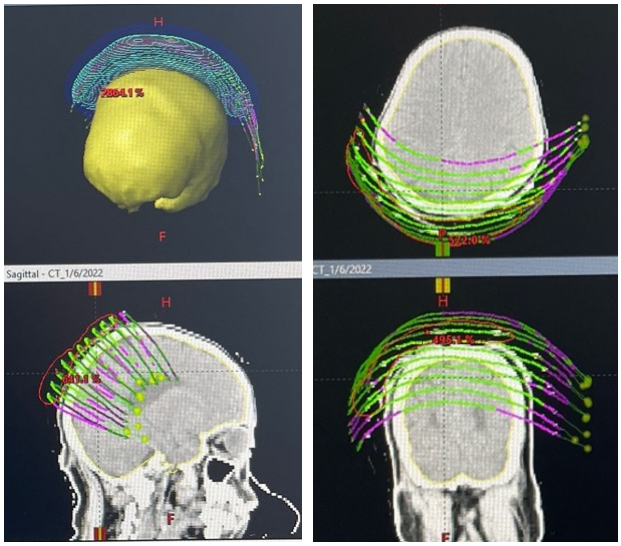
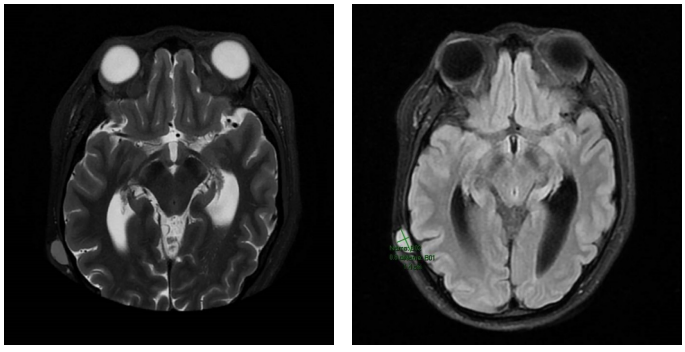


Figure 2. Dose distribution of the final surface-mold plan using 11 catheters. The 100% isodose line (32.5 Gy) conforms to the planning target volume over the parieto-occipital scalp, with a rapid dose fall-off toward the underlying brain.

Figure 3. Three-dimensional workflow for applicator design, showing the CT-based reconstruction of the scalp surface, the dummy skull printed on a Project MJP 3600 printer, and the customized surface mold with the 11 catheters in their planned positions.

Outcome and Follow-up

The irradiated tumor bed responded completely, and at follow-up, the patient experienced only mild hyperpigmentation and alopecia in the treated area. In early 2024, a subcutaneous nodule approximately 1 to 2 cm in size was noticed at the edge of the surgical scar in the right temporal region, while the rest of the scar and the irradiated field remained free of disease. An MRI in July 2024 demonstrated a discrete soft-tissue nodule in the right posterior temporal scalp (1.4 × 0.8 cm), with no other lesions identified and no intracranial extension (Figure 4). The patient subsequently underwent wide local excision of the temporal soft-tissue mass, with the specimen oriented for histopathological analysis. Histopathology revealed a well-circumscribed spindle-cell tumor in a storiform pattern, measuring 1.7 × 1.4 × 1 cm, with mild atypia, a mitotic count of 3/10 HPF, and no necrosis, high-grade atypia, or herringbone pattern. Immunohistochemistry revealed strong diffuse CD34 positivity, with a Ki-67 index of 10–15%, consistent with recurrent DFSP and no fibro-sarcomatous transformation. The anterior and inferior margins were involved, with the tumor less than 1 mm from the lateral and deep margins, 1 mm from the superior margin, and 2 mm from the medial margin. Because the nodule appeared at the edge of the scar, at the lateral margin of the irradiated field rather than within its central high-dose region, and the rest of the treated bed remained in control, it was regarded as a marginal (field-edge) recurrence.



(A) Axial T2-weighted (B) Axial T2-FLAIR

Figure 4. Axial MR image of the recurrent right temporal lesion (July 2024). Panels (A) T2-weighted and (B) T2-FLAIR show a subcutaneous, well-defined nodular soft-tissue lesion in the right posterior temporal region, posterior to the right auricle, measuring 1.4 × 0.8 cm.

On the T2-weighted image (A), the nodule is mildly hyperintense and well circumscribed, clearly separated from the adjacent subcutaneous fat, and it remains conspicuous on the T2-FLAIR sequence (B). No intracranial extension is observed, and the lesion lies within the surgical bed at the lateral edge of the previously irradiated field, in keeping with the marginal recurrence described above.

The case was discussed by the multidisciplinary tumor board. In view of the prior wide resection and adjuvant brachytherapy—and given that the current resection demonstrated close/positive margins but no high-grade transformation—the consensus was for active surveillance. At a clinical review on 19/02/2026, the patient was clinically well with a healed scar and no evidence of recurrence. She remains on clinical follow-up every 6 months.

The patient experienced only mild grade 1 radiation dermatitis and partial alopecia. The irradiated bed showed an initial complete response. Marginal recurrence at the edge of the treated field appeared approximately twenty-two months after brachytherapy and was salvaged by wide local excision; after this, the patient remained clinically free of recurrence at the most recent follow-up (approximately 4 years after brachytherapy), although surveillance ultrasound was limited by poor cooperation. Long-term toxicities included mild hyperpigmentation, fibrosis, thinning of the skin graft, and localized alopecia.

Clinical timeline

Table 1. Timeline of the clinical course, from initial presentation to the most recent follow-up.

Date	Event
Jun 2021	Initial unplanned excision of an undiagnosed right occipital scalp lesion (private hospital); features of DFSP
06 Apr 2022	Wide local excision with occipital transposition flap and split-thickness skin graft; deep (margin positive at the skull (R1
25 Apr 2022	MDT: R1 resection → adjuvant radiotherapy indicated
29 May & 01 Jun 2022	CT simulation under sedation followed by one resimulation as the plan changed from non-3D-printed to 3D-primted approach, using 11 catheters instead of 6 catheters
06–15 Jun 2022	(Adjuvant HDR surface-mold brachytherapy, 32.5 Gy in 5 fractions (Ir-192
2023	Irradiated bed: complete response; only mild hyperpigmentation and alopecia
Apr 2024	Subcutaneous nodule (1–2 cm) at the edge of the scar, right temporal; rest of irradiated field free
Jul 2024	MRI: 1.4 × 0.8 cm nodule, right posterior temporal; no intracranial lesion
23 Jul 2024	Wide local excision of the right temporal mass; histology: recurrent DFSP, no fibrosarcomatous transformation; anterior/inferior margins involved
05 Aug 2024	(MDT: observation (prior resection and radiation already given
19 Feb 2026	(Clinically well, no recurrence; continues 6-monthly follow-up (US limited by cooperation

Discussion

Surface mold HDR brachytherapy is particularly useful for lesions on convex surfaces where standard external beam radiotherapy (EBRT) may provide suboptimal coverage. Its steep dose gradient allows for effective sparing of underlying critical structures, such as the brain. In this case, the shorter overall treatment time with brachytherapy—only 5 fractions—was especially beneficial because of the patient's requirement for repeated sedation under anesthesia (5, 10, 12).

Hans et al. described the use of mold brachytherapy in the adjuvant setting for DFSP in a report involving a scalp lesion, similar to our case. At eighteen months post-treatment, their patient was free of local recurrence, with only hypopigmentation in the irradiated area (13). In our case, we observed mild hyperpigmentation and partial alopecia. In our patient, the central irradiated bed remained in control, but a marginal recurrence developed at the edge of the field approximately twenty-two months after treatment, and the patient was surgically salvaged. Reports of DFSP treated specifically with brachytherapy are scarce; the few published cases, together with the present case, are summarized in Table 2.

Table 2. Published cases of dermatofibrosarcoma protuberans treated with brachytherapy compared with the present case.

Study (year)	Site/patient	Margin status	RT modality & dose	Follow-up	Outcome
Jamora et al. (2022)	Right upper eyelid; 40 y, M	Positive	Adjuvant HDR surface mold (dose NR)	NR	Local control reported
Hans et al. (2023)	Scalp, parieto-occipital; recurrent, adult M	Recurrent, postresection	Adjuvant HDR customized surface mold (dose NR)	18 months	Disease-free; no toxicity
Present case (2026)	Scalp, right parieto-occipital; 25 y, F, Down syndrome	Deep positive (skull, R1)	Adjuvant HDR surface mold, 32.5 Gy/5 fx, Ir-192, 3D-printed mold	~44 months	Initial complete response of the surgical bed; marginal (field-edge) recurrence at ~22 months, salvaged by excision; clinically disease-free at last follow-up

The integration of 3D printing enabled precise treatment planning without the need for resimulation, a major advantage given the patient's limited cooperation. Such innovations are increasingly important for adapting radiotherapy to patient-specific anatomical and logistical needs (14).

The patient's Down syndrome introduced additional considerations. Trisomy 21 is linked to a markedly increased risk of childhood leukemia but, overall, to a decreased risk of solid tumors in both children and adults, and no consistent association with DFSP or other soft tissue sarcomas has been described (19). The occurrence of DFSP in this patient is therefore better understood as incidental rather than driven by the syndrome, and the main effect of the genetic condition was on management rather than on tumor biology. Owing to associated cognitive delays and potential anesthesia-related risks, careful multidisciplinary planning was essential. Patients with Down syndrome have an increased risk of complications from anesthesia because of potential congenital cardiac, gastrointestinal, urinary, or skeletal abnormalities (15). In this patient, Down syndrome was associated with a congenital cardiac defect that had been surgically corrected in childhood, exactly the kind of anomaly that increases anesthetic risk and reinforced the choice of a short, fixed-mold schedule that kept the number of sedations to a minimum. While this patient tolerated repeated anesthesia without complications, this case highlights the importance of optimizing source activity and minimizing the frequency of sedation whenever possible.

This is a single case with limited follow-up. The original tumor had a deep positive margin at the skull, whereas the surface mold treated mainly the graft and scar bed to spare the brain; the marginal recurrence that followed shows that the field edges and the deep aspect are the weak points of this technique and that careful margin definition and close surveillance are essential. The findings should be read as supportive rather than definitive.

Conclusion

This case suggests that HDR surface mold brachytherapy can be a useful and practical option for treating scalp DFSP in anatomically complex cases and in patients with compliance challenges. The successful integration of 3D printing technology enabled precise and efficient treatment planning, reducing the patient's burden and enhancing care delivery. The marginal recurrence observed here shows that adequate coverage of the field margins remains important and that longer follow-up is needed. Further prospective studies are warranted to standardize the protocols and explore the broader applications of this approach.

Authors Declarations

Patient Consent

Informed consent for the treatment and for the use of photos and clinical information was obtained from the patient's parents, as the patient herself was cognitively impaired.

Funding. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest. The authors declare that they have no conflicts of interest.

Ethics Statement. Ethics approval for this study was obtained from the Institutional Review Board and Ethics Committee of the Sultan Qaboos Comprehensive Cancer Care and Research Centre (SQCCCRC), Oman (Approval No: CCCRC-59-2024; Ref. No: SQCCCRC-IRB&EC/113/2024/CCCRC-59-2024; approval date: 11 July 2024).

Consent for Publication. Written informed consent for the publication of clinical details and images was obtained from the patient's parents/legal guardians, as the patient was cognitively impaired.

Data availability. The data supporting this case report are available from the corresponding author upon reasonable request.

Author Contributions. All the authors contributed to patient management, data collection, and drafting and critical revision and approved the final manuscript.

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Supplementary Material

CARE Case Report Checklist

CARE item	Topic	Checklist description	Reported?	Location in manuscript	Author comments
1	Title	The diagnosis or intervention of primary focus is followed by the words “case report”.	Yes	Title page / manuscript title	The title identifies the intervention (surface mould brachytherapy), diagnosis (scalp DFSP), patient context (Down syndrome), and states “A Case Report”.
2	Keywords	Two to five keywords identify diagnoses or interventions in the case report, including “case report” where required by the journal.	Yes	Keywords	Revised keywords: Dermatofibrosarcoma Protuberans; DFSP; Brachytherapy; Down Syndrome; Radiotherapy; Soft Tissue Sarcoma; 3D Printing. “Case Report” is included in the title; keyword list follows editor-suggested terms.
3a	Abstract - Introduction	What is unique about this case and what does it add to the medical literature?	Yes	Abstract, first paragraph	The abstract states that this is a rare scalp DFSP in a patient with Down syndrome treated with HDR surface mould brachytherapy and 3D printing.
3b	Abstract - Patient concerns and clinical findings	The patient’s main concerns and important clinical findings are summarized.	Yes	Abstract, second paragraph	The abstract summarizes recurrent DFSP after unplanned excision, positive deep margin, scalp anatomy, cognitive impairment, and need for sedation.

3c	Abstract - Diagnoses, interventions, and outcomes	Primary diagnoses, interventions, and outcomes are summarized.	Yes	Abstract, second and third paragraphs	Diagnosis, wide local resection, HDR surface mould brachytherapy, 32.5 Gy/5 fractions, toxicity, field-edge recurrence, salvage excision, and current clinical status are summarized.
3d	Abstract - Conclusion	One or more take-away lessons are stated.	Yes	Abstract, final paragraph	The conclusion is softened to state that HDR surface mould brachytherapy with 3D printing can be a useful and practical adjuvant option, while field-margin coverage and close follow-up remain important.
4	Introduction	Briefly summarizes why the case is unique and may include medical literature references.	Yes	Introduction	The Introduction summarizes DFSP rarity, recurrence risk, surgical management, adjuvant radiotherapy, brachytherapy, and the uniqueness of this case in a patient with Down syndrome.
5a	Patient information - De-identified information	De-identified patient-specific information is provided.	Yes	Case Presentation	The patient is described without identifiers as a young woman with Down syndrome.
5b	Patient information - Main concerns and symptoms	Primary concerns and symptoms of the patient are described.	Yes	Case Presentation; Outcome and Follow-up	Presentation with recurrent scalp DFSP and later right temporal subcutaneous nodule are described.
5c	Patient information - Medical, family, psychosocial, and genetic information	Relevant medical, family, psychosocial, and genetic information is included where applicable.	Yes	Case Presentation; Discussion	Down syndrome, cognitive impairment, compliance issues, anesthesia considerations, and congenital cardiac history are discussed. No specific family history was relevant or reported.
5d	Patient information - Relevant past interventions and outcomes	Relevant past interventions and their outcomes are described.	Yes	Case Presentation; Clinical Timeline	Initial unplanned excision, documented recurrence, wide local excision with transposition flap/skin graft, positive deep margin, adjuvant radiotherapy, and later salvage excision are described.
6	Clinical findings	Relevant physical examination and clinical findings are reported.	Yes	Case Presentation; Outcome and Follow-up; Figure 1	The recurrent scalp lesion, surgical defect, reconstruction, later right temporal nodule, healed scar, and clinical follow-up findings are reported.
7	Timeline	A timeline summarizes important dates and events.	Yes	Clinical Timeline, Table 1	A chronological table has been added from June 2021 through February 2026, including surgeries, MDT reviews, simulation, brachytherapy, MRI, recurrence, salvage excision, and follow-up.
8a	Diagnostic assessment - Diagnostic methods	Diagnostic methods such as examination, imaging, laboratory testing, pathology, and other assessments are described.	Yes	Case Presentation; Outcome and Follow-up; Figure 4	Diagnosis was based on histopathology and immunohistochemistry. MRI findings of the recurrent temporal lesion are described and illustrated.
8b	Diagnostic assessment - Diagnostic challenges	Diagnostic challenges, where relevant, are described.	Yes	Case Presentation; Discussion	The initial lesion was excised before diagnosis, leaving a recurrent/positive-margin scenario. Cooperation and sedation requirements affected diagnostic and treatment logistics.
8c	Diagnostic assessment - Diagnostic reasoning	Diagnostic reasoning, including differential diagnosis where relevant, is described.	Yes	Outcome and Follow-up	The later lesion is interpreted as recurrent DFSP based on spindle-cell storiform histology, diffuse CD34 positivity, Ki-67 10-15%, and absence of fibrosarcomatous transformation.
8d	Diagnostic assessment - Prognostic characteristics	Prognostic characteristics are described where applicable.	Yes	Case Presentation; Outcome and Follow-up; Discussion	Positive/close margins, absence of high-grade or fibrosarcomatous transformation, Ki-67, mitotic activity, and field-edge location of recurrence are reported.
9a	Therapeutic intervention - Types of intervention	.The type of intervention is described	Yes	Case Presentation; Treatment Planning	Wide local excision, occipital transposition flap, split-thickness skin graft, adjuvant HDR surface mould brachytherapy, and salvage wide local excision are described.
9b	Therapeutic intervention - Administration details	Administration details including dose, duration, and changes are described.	Yes	Treatment Planning; Clinical Timeline	HDR brachytherapy dose was 32.5 Gy in 5 alternate-day fractions using an Ir-192 source; treatment dates, applicator/catheter planning, 3D printing, and dosimetric details are reported.

9c	Therapeutic intervention - Changes and rationale	Changes in intervention and their rationale are described.	Yes	Treatment Planning	The plan was revised from 6 to 11 catheters after peer review to improve coverage; a 3D-printed dummy skull allowed replanning without further resimulation.
10a	Follow-up and outcomes - Clinician/ patient-assessed outcomes	Clinical course and outcomes are reported.	Yes	Outcome and Follow-up; Discussion; Conclusion	The irradiated bed showed initial complete response; a marginal recurrence occurred about 22 months later and was salvaged surgically; the patient was clinically free of recurrence at the latest follow-up.
10b	Follow-up and outcomes - Follow-up tests	Important follow-up diagnostic and other test results are reported.	Yes	Outcome and Follow-up; Figure 4	MRI in July 2024 showed a 1.4 × 0.8 cm right posterior temporal scalp lesion without intracranial extension. Follow-up ultrasound was limited by cooperation.
10c	Follow-up and outcomes - Adherence and tolerability	Intervention adherence and tolerability are reported.	Yes	Case Presentation; Outcome and Follow-up; Discussion	Sedation was required for simulation and treatment; the patient completed the 5-fraction course and tolerated treatment well.
10d	Follow-up and outcomes - Adverse events	Adverse and unanticipated events are reported.	Yes	Outcome and Follow-up	Mild grade 1 dermatitis, partial alopecia, mild hyperpigmentation, fibrosis, thinning of the skin graft, localized alopecia, and the later marginal recurrence are reported.
11a	Discussion - Strengths and limitations	Strengths and limitations of the case report are discussed.	Yes	Discussion	Strengths include a rare case, technical details, 3D-printing workflow, and long follow-up. Limitations include single-case design, limited imaging follow-up due to cooperation, positive margin at skull, and marginal recurrence.
11b	Discussion - Relevant medical literature	Relevant literature is reviewed.	Yes	Introduction; Discussion; Table 2; References	The manuscript reviews DFSP management, adjuvant radiotherapy, ABS soft-tissue sarcoma brachytherapy guidance, Down syndrome malignancy risk, 3D printing in radiotherapy, and published DFSP brachytherapy cases.
11c	Discussion - Rationale for conclusions	The rationale for conclusions is explained.	Yes	Discussion; Conclusion	The manuscript explains why HDR surface mould brachytherapy was useful in this anatomically complex and compliance-limited scenario, while also emphasizing field-margin coverage and surveillance.
11d	Discussion - Take-away lessons	Main take-away lessons are stated.	Yes	Discussion; Conclusion	The case supports HDR surface mould brachytherapy as a practical option in selected cases, but the marginal recurrence highlights the importance of adequate field margins and close follow-up.
12	Patient perspective	The patient's perspective or experience is included when appropriate.	Not applicable / limited	Patient Consent; Discussion	Direct patient perspective could not be obtained because of cognitive impairment related to Down syndrome. Consent and clinical information were provided by the parents/legal guardians.
13	Informed consent	Informed consent is documented.	Yes	Patient Consent; Declarations - Consent for Publication	Written informed consent for treatment and publication of clinical details and images was obtained from the patient's parents/legal guardians.