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Pott's Puffy Tumor: A Contemporary Review and Evaluation of a Rare but Life-Threatening Frontal Bone Disorder with Misleading Nomenclature

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Abstract: Pott's puffy tumor (PPT) is a rare, life-threatening complication of frontal sinusitis. It involves osteomyelitis of the frontal bone and subperiosteal abscess formation. First described by Percivall Pott, PPT is a severe progression of untreated or inadequately managed sinus infection. It can extend intracranially through the valveless diploic venous system.

This narrative review synthesizes current evidence on PPT's epidemiology, pathophysiology, clinical presentation, diagnostic evaluation, and management. The review draws from major biomedical databases, including PubMed, Scopus, Google Scholar, and Embase. PPT is most commonly seen in adolescents due to increased vascularity of the diploic system. However, adult cases are increasingly reported. Risk factors include chronic sinusitis, trauma, immunosuppression, and previous sinonasal procedures.

Clinically, PPT presents with forehead swelling, headache, fever, and nasal symptoms, and is frequently associated with serious intracranial complications such as epidural abscess, subdural empyema, meningitis, and brain abscess. Diagnosis requires a high index of suspicion and is supported by imaging: computed tomography evaluates bony involvement, and magnetic resonance imaging provides superior assessment of intracranial extension. This may also require a call-to-action plan to ensure proper disease categorization. Management involves prompt initiation of broad-spectrum intravenous antibiotics and timely surgical intervention for drainage and debridement. Despite its rarity, PPT remains underrecognized, and delayed diagnosis can result in significant morbidity and mortality. Early recognition and a combined medico-surgical approach are essential to improving clinical outcomes and preventing life-threatening complications.

Keywords: *Pott's Puffy Tumor, Frontal Sinusitis, Periorbital Cellulitis, Osteomyelitis, Intracranial Epidural Abscess.*

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I. INTRODUCTION

Pott's puffy tumor (PPT) is a rare but potentially serious complication of frontal sinusitis. It is characterized by osteomyelitis of the frontal bone, ethmoidal or frontal sinusitis, and a subperiosteal abscess. Clinically, it presents as localized swelling of the forehead due to the accumulation of purulent material beneath the periosteum after infection of the frontal bone. Extracranial manifestations often include subperiosteal or subgaleal abscesses. PPT can occur across all age groups, but it is most commonly seen in adolescents. It may also follow dental infection or occur as a late complication of neurosurgical interventions. Although rare in the modern antibiotic era, PPT remains clinically significant due to its association with intracranial complications such as epidural abscess, subdural empyema, meningitis, and dural venous sinus thrombosis [1-3].

The entity was first described in 1760 by Sir Percivall Pott (1714–1788), an English surgeon at St Bartholomew's Hospital in London. He reported cases of forehead swelling linked to osteomyelitis of the frontal bone after cranial trauma [4]. The historical term "puffy tumor" reflects the classical medical use of "tumor" to denote swelling rather than neoplastic disease. Despite its infectious cause, the traditional term is still widely used in medical literature because of its historical significance and ongoing clinical recognition [5].

Prior to the widespread use of antibiotics, PPT was frequently observed as a complication of untreated sinus infections or cranial trauma. In contemporary clinical practice, it most commonly develops as a complication of acute or chronic frontal sinusitis. The gold standard in PPT management remains well-orchestrated, with calculated antibiotic therapy combined with operative drainage of the infection. Additionally, predisposing factors reported in the literature include craniofacial trauma, previous frontal sinus surgery, dental infections, intranasal drug use, and immunocompromised states, which are also factors that must be considered in the course of management [6].

This condition is more common in adolescents and young adults. This has been attributed to increased vascularity of the diploic venous system during this stage. These valveless veins connect the mucosa of the frontal sinus with intracranial venous structures. They facilitate the spread of infection from the sinus to the frontal bone and adjacent intracranial compartments [7].

The pathological process typically begins with a frontal sinus infection that extends into the frontal bone. This results in osteomyelitis. Progressive infection may disrupt the periosteum. This allows purulent material to accumulate beneath it, producing the characteristic swelling of the forehead. In some cases, infection extends intracranially through venous channels or by direct erosion of the posterior wall of the frontal sinus. Figure 1[8] summarizes the pathogenesis of this process.

A high index of suspicion is needed, as early symptoms may mimic uncomplicated sinusitis and delay diagnosis. Imaging modalities, especially computed tomography (CT) and magnetic resonance imaging (MRI), are essential for confirming the diagnosis and detecting potential intracranial complications [9]. Early recognition and prompt, multidisciplinary management by pediatric, neurosurgical, ENT, radiological, and neuroradiological specialists are critical. Diagnosis of PPT is based on clinical examination. This review offers a contemporary overview of Pott's puffy tumor, emphasizing its epidemiology, pathogenesis, diagnostic evaluation, and management strategies.

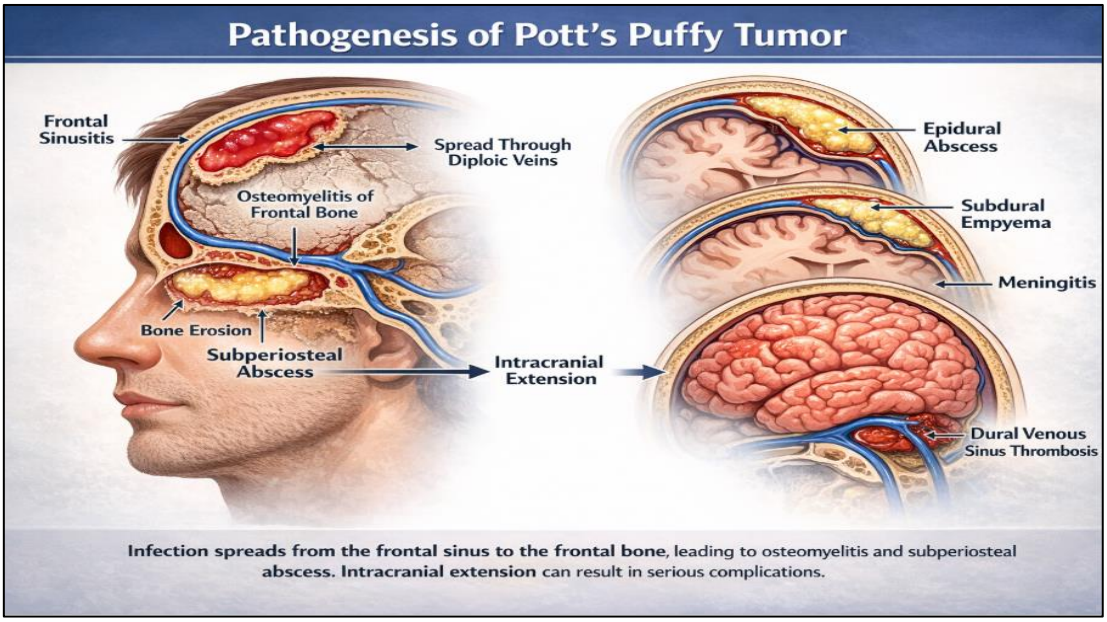

Fig 1 Pathophysiological Progression of Pott's Puffy Tumor.
Source: Okikiade, A. (2026).*Pathogenesis and Intracranial Complications of Pott's Puffy Tumor*[Rapid Review Medical Illustrations Session].California Northstate University College of Medicine.

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Infection originating in the frontal sinus may spread through the diploic venous system to the frontal bone, leading to osteomyelitis and formation of a subperiosteal abscess. If untreated, the infection may extend intracranially, resulting in complications such as epidural abscess, subdural empyema, meningitis, or dural venous sinus thrombosis.

➢ *Definition and Nomenclature*

Pott's puffy tumor is defined as osteomyelitis of the frontal bone associated with a subperiosteal abscess, most commonly arising as a complication of frontal sinusitis. The resulting accumulation of purulent material beneath the periosteum produces the characteristic swelling of the forehead that defines the condition [10].

The disease process involves the spread of infection from the frontal sinus to the frontal bone through the diploic venous system. This extension leads to osteomyelitis and the subsequent formation of a subperiosteal abscess. In advanced cases, infection may extend intracranially through venous channels or by erosion of the posterior wall of the frontal sinus [11].

➢ *Epidemiology and Risk Factors*

The prevalence and demographic profile of Pott's Puffy Tumor have profoundly changed since the dawn of the antibiotic era. In the pre-penicillin age, it was a relatively common, often catastrophic consequence of untreated frontal sinusitis. Today, however, it emerges more often as a "masked" clinical entity. This modern presentation frequently results from inadequate or incomplete antibiotic therapy. A sub-therapeutic course may blunt symptoms of sinus infection without eradicating underlying bone destruction, leading to a "simmering" state of osteomyelitis that can progress unnoticed until forehead swelling appears [12, 13].

While the disease can strike at any age, there is a strikingly consistent predominance among adolescents and young adults. This vulnerability is not a matter of chance; it is deeply rooted in human development. During puberty, the frontal sinus undergoes a surge in pneumatization and growth, making the area more vascular and reactive. Furthermore, the diploic venous system ,specifically the valveless veins of Breschet, reaches its peak complexity and blood flow during these years. These veins act as low-pressure, bidirectional highways, allowing bacteria to migrate from the infected sinus mucosa directly into the marrow of the frontal bone without the need for initial bony erosion [14]. Beyond these developmental factors, several specific risk triggers define the modern patient profile, such as :

- The Sinusitis Gateway: Acute flare-ups are the most common trigger, but long-standing chronic frontal sinusitis remains the most dangerous, as it slowly weakens the bone over time [15].
- Mechanical Insult: Facial trauma, seemingly minor and blunt; insect bite; postsurgical frontal sinus reconstruction can disrupt the integrity of the thin sinus walls and seed existing bacteria into the diploic space [12].
- Intranasal Drug Use (cocaine, methamphetamine): There is a documented correlation with substance abuse, particularly cocaine, which causes intense local vasoconstriction and mucosal necrosis, providing a perfect anaerobic environment for bone-eating pathogens to thrive [14].
- Systemic Vulnerability: While many PPT patients appear otherwise healthy, those with underlying immunosuppression or poorly managed diabetes often face a much more aggressive and rapid clinical progression [13][15].

➢ *Pathophysiology*

A comprehensive study collected data from 1983 to 2022, yielding interesting finding: prevalence was higher in adults aged 45 years and older, with males having a higher prevalence than females, at a ratio of 3:1 [17,18,19,20]. The study further revealed a total of 52 cases with distributive comorbidities, mostly head trauma (24.5%), sinus/neurosurgical operations (22.4%), immunosuppression conditions (13.3%), diabetes mellitus (9.1%), cocaine use (7.1%), and dental infections (6.1%) [17,20,21]. A total of 28 cultures revealed Streptococcus (22.4%), 24 contained staphylococci (19.2%), and 22 cultures contained other pathogens (17.6%) [17,18,19,20]. Approximately 30.4% developed intracranial complications, with the most common being epidural abscesses or empyemas (55.3%), as well as subdural (15.7%) and extradural lesions (13.2%)[1,17,19,21].

The mechanisms most commonly associated with PPT are contiguous spread and hematogenous dissemination [21,22]. The contiguous spread occurs after exposure of the frontal bone to pathogens during open trauma, leading to osteomyelitis [22, 23]. Most bacteria found in PPT correspond to community-acquired sinusitis, such as *Streptococcus* species, *Staphylococcus* species, Haemophilus influenzae, Klebsiella species, anaerobes(Fusobacterium and Bacteroides species) , and enterococci, with staphylococci being the most common agents in most literature [16,17,22]. Streptococcus intermedius was found in 75% of patients in few studies. Likewise, Staphylococcus *capitis* was detected [16][17].Hematogenous dissemination can occur via infection of valveless diploic veins, resulting in meningitis, brain abscess, septic thrombophlebitis, cavernous sinus thrombosis, dural venous thrombophlebitis, and venous congestion [24, 25]. Disruption of the blood supply to the frontal bone from venous thrombosis or congestion triggers an inflammatory cascade, leading to raised intracranial pressure and bone matrix necrosis, creating an anaerobic environment for causative pathogens [24].

➢ *Clinical Presentations*

Diagnosing Pott's Puffy Tumor is often a race against clinical deception, because the condition is rare and the hallmark "puffiness" is characterized by fluctuating, circumscribed swelling of the forehead that is often misidentified as a simple soft-tissue abscess, a sebaceous

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cyst, or even a severe insect bite. This swelling actually represents a subperiosteal abscess, signaling that the infection has already breached the anterior table of the frontal sinus [12]. The overlying skin is typically erythematous and exquisitely tender, reflecting the high-pressure inflammatory process occurring just beneath the bone [15]. The local forehead findings rarely exist in a vacuum; they are almost always accompanied by a cluster of systemic and sinonasal indicators that tell a more serious story(Figures 2 and 3).

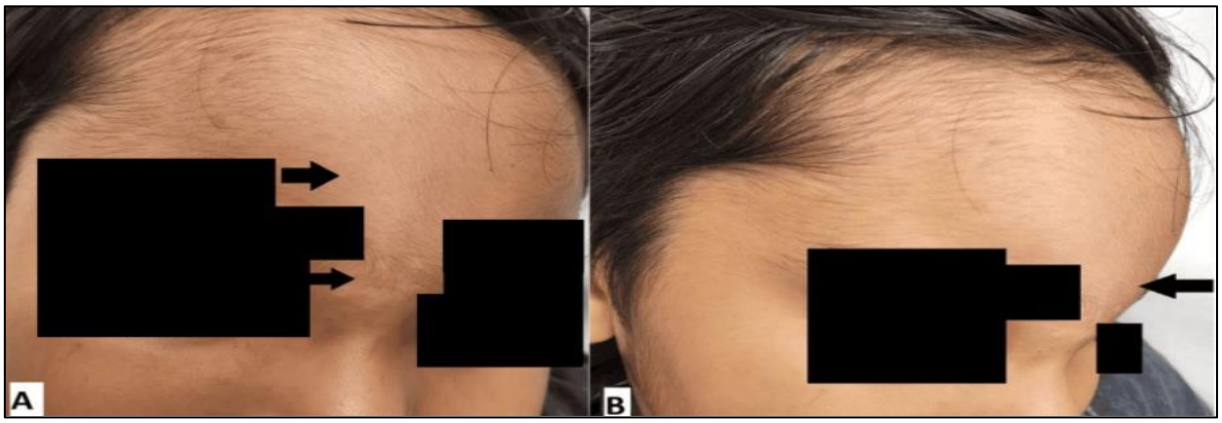

Fig 2 Panels (A,B) Show a Soft Swelling on the Forehead Extending to the Root of the Nose. Arrows: Swelling Measuring 8x5 cm.
Source:https://drganent.com/blog/potts-puffy-tumor-a-rare-but-serious-complication-of-sinusitus-warning//.

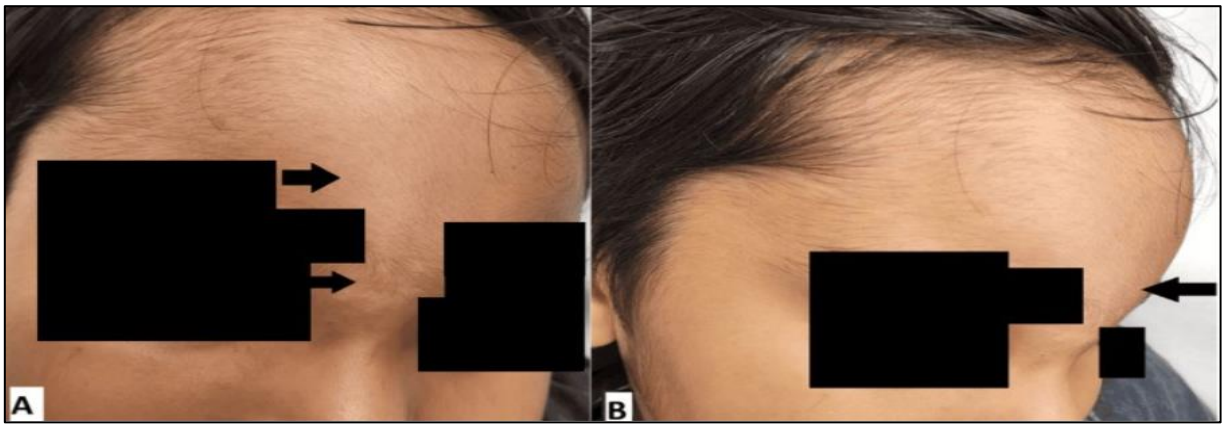

Fig 3 Potts Puffy Tumor in an Adult.
Source:https://drganent.com/blog/potts-puffy-tumor-a-rare-but-serious-complication-of-sinusitus-warning//

The Fever and Headache Complex: Most patients present with high-grade fevers and a deep, unrelenting headache. This is not a typical sinus pressure headache; it is often described as a boring, localized pain that fails to respond to standard over-the-counter analgesics [14].

The "Quiet" Sinus: Interestingly, many patients report a history of purulent nasal discharge that seems to be improving or "drying up" just as the forehead swelling appears. This is a critical clinical trap. The resolution of rhinorrhea may actually indicate that the sinus drainage pathway has become completely obstructed, forcing the infection to exit through the bone instead [13].

Neurologic Red Flags: The most vital part of the physical exam is screening for evidence that the infection has moved backward through the posterior wall and into the cranium. Physicians must be on high alert for any subtle "red flags," such as lethargy, sudden irritability, or a slightly altered mental status, which often point toward a subdural empyema. Similarly, the onset of neck stiffness (meningismus), photophobia, or focal neurological deficits like seizures and cranial nerve palsies indicates that the "puffy tumor" has officially transitioned into a life-threatening neurosurgical emergency [12, 14].

II. DIAGNOSTIC EVALUATIONS

PPT can be diagnosed based on history taking and clinical examination; however, laboratory tests and diagnostic imaging are important components of the diagnostic framework for PPT [26]. Possible blood test results include raised white cell count, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and positive blood culture for causative pathogens [23].

Imaging studies are integral to understanding the causes, course, and complications of suspected PPT, as shown in Figure 4-7[17,18,19,20]. Although, contrast-enhanced CT (ce-CT) of the head is an initial diagnostic

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image modality because it is quick and easily accessible, contrast-enhanced MRI (ce-MRI) of the brain/head remains the gold standard, as it detects changes in intracranial soft tissue and evaluates the extent of spread of the infection [26, 27]. The brain contrast-enhanced CT visualizes frontal sinusitis, bone erosion, intracranial extensions, brain abscesses, and areas of lytic lesions indicating osteomyelitis [24, 25]. MRI provides superior visualization of meningeal involvement, intraorbital structures, sinus vein thrombosis, bone edema, and pneumocephalus as shown in Figure 6-7[23,25,26,27]. MRI is also used for treatment monitoring, thereby reducing radiation exposure [22,23,24].

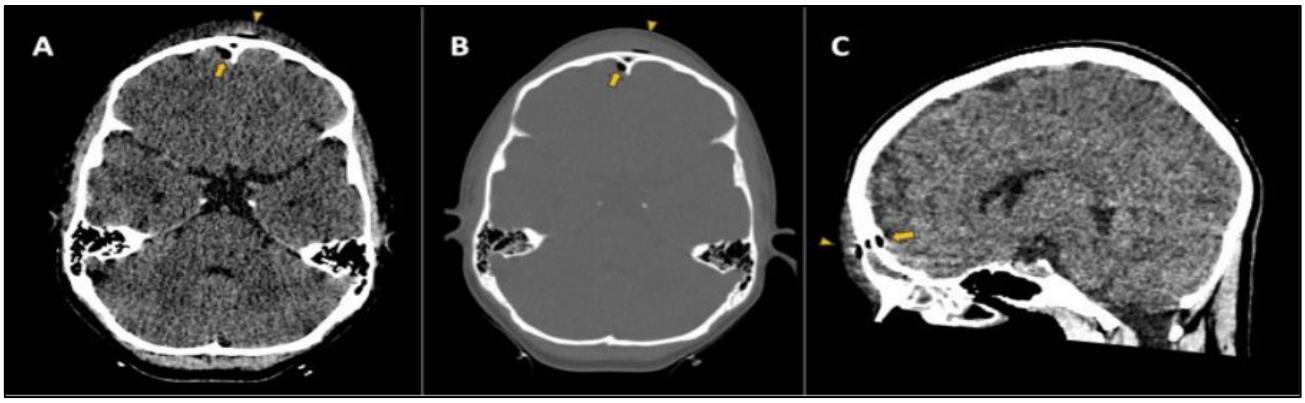

Fig 4 Simple Skull Tomography.

A. Axial - Brain Window,
B. Axial - Bone Window,
C. Sagittal - Brain Window.

Frontal pneumoencephalus(Arrow). Frontal soft tissue edema with an air bubble near the anterior wall of the frontal sinus (Arrowhead).

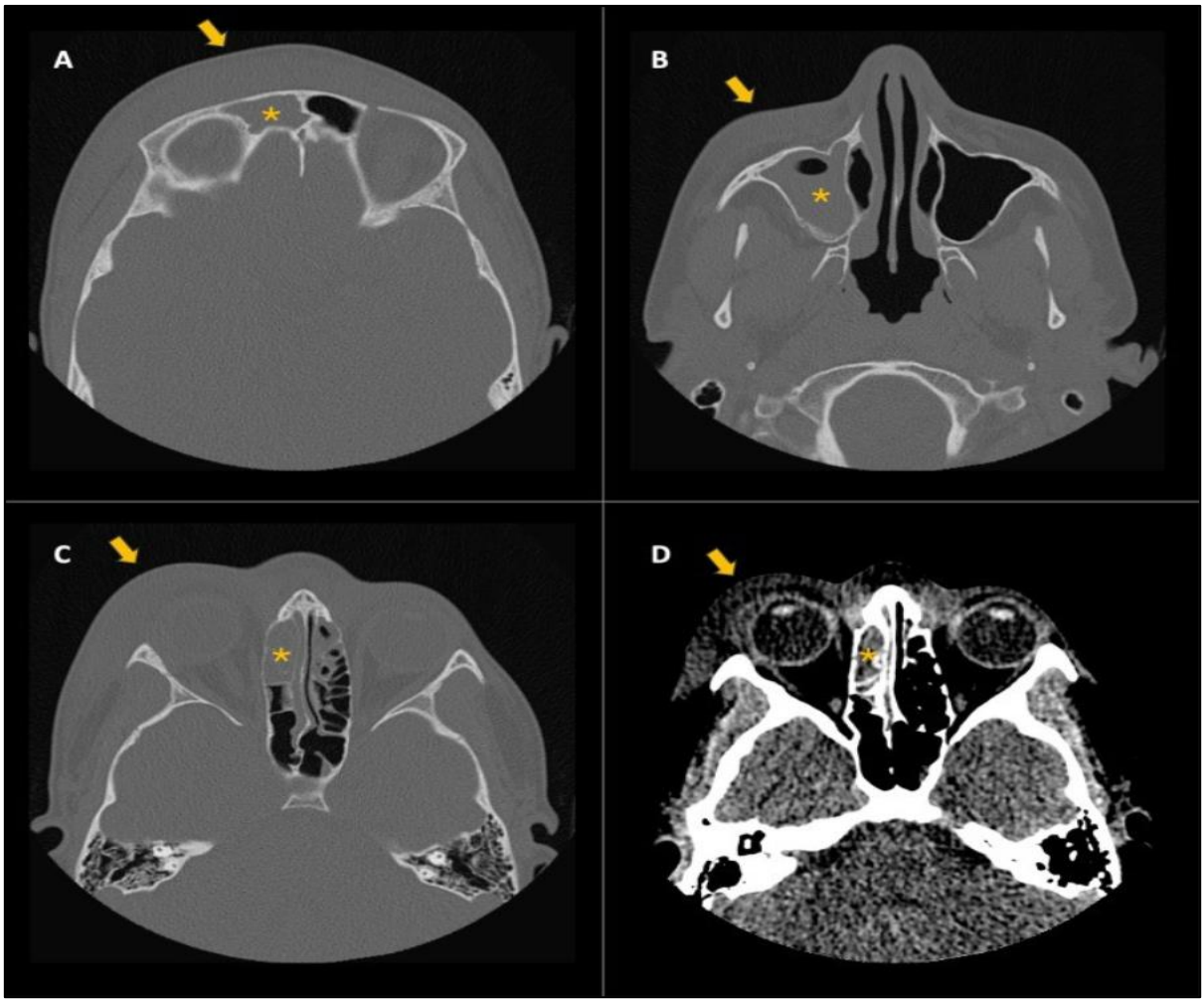

Fig 5 Simple Tomography of the Paranasal Sinuses.

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A. Axial - Bone Window: Thickening and edema of the frontal soft tissues (Arrow). Right frontal sinus occupied (Asterisk).
B. Axial - Bone Window: Thickening and edema of the malar soft tissues on the right side (Arrow). The right maxillary sinus is occupied with an air-fluid level (Asterisk).
C-D. Axial - Bone and Soft Tissue Window: Thickening of the right periorbital, preseptal soft tissues (Arrow). Right ethmoidal cells occupied (Asterisk).

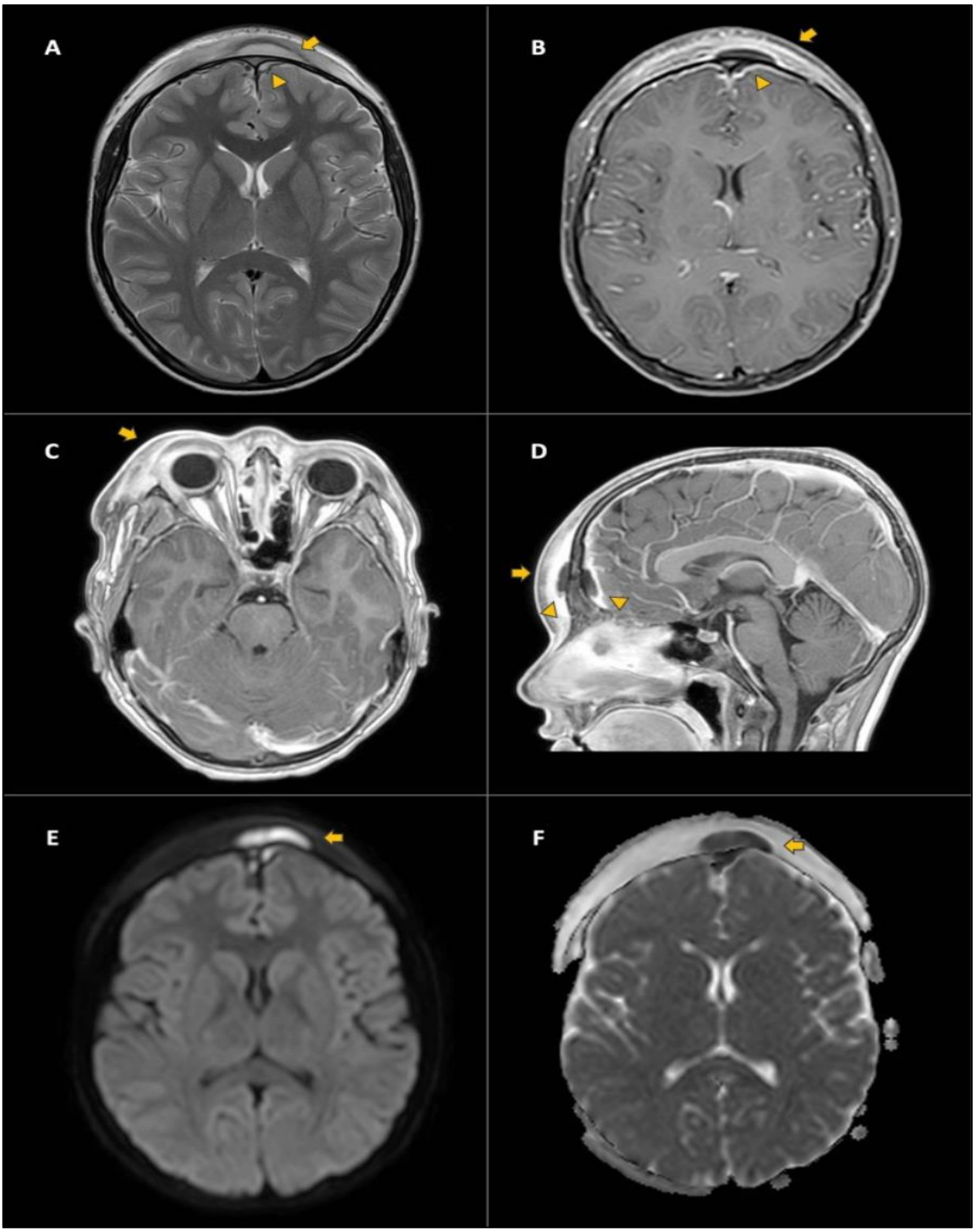

Fig 6 Contrast-Enhanced MRI of the Skull.

A. T2 - Axial: Subperiosteal collection, observe the periosteum lifting depicted as a thin hypointense line (arrow). Bilateral frontal epidural collection (arrowhead).
B. Contrast-enhanced SPIR - Axial: Frontal soft tissue enhancement surrounding the frontal collection (arrow). Leptomeningeal enhancement adjacent to frontal epidural collection (arrowhead).

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C. Contrast-enhanced T1 - Axial: Enhancement of the pre- and post-septal periorbital soft tissues (arrow).
D. Contrast-enhanced T1 - Sagittal: Enhancement of the soft tissues of the forehead (arrow). Note the collection in the frontal soft tissues and frontal epidural, the latter with adjacent leptomeningeal enhancement (arrowheads).
E-F. DWI and ADC Map: The frontal collection (arrows) is hyperintense on the diffusion-weighted images and hypointense on the ADC map; diffusion-weighted sequence restriction confirms the presence of pus.
T2: T2-weighted MRI; T1: T1-weighted MRI; DWI: Diffusion-weighted imaging; ADC: Apparent diffusion coefficient; SPIR: Spectral pre-saturation with inversion recovery

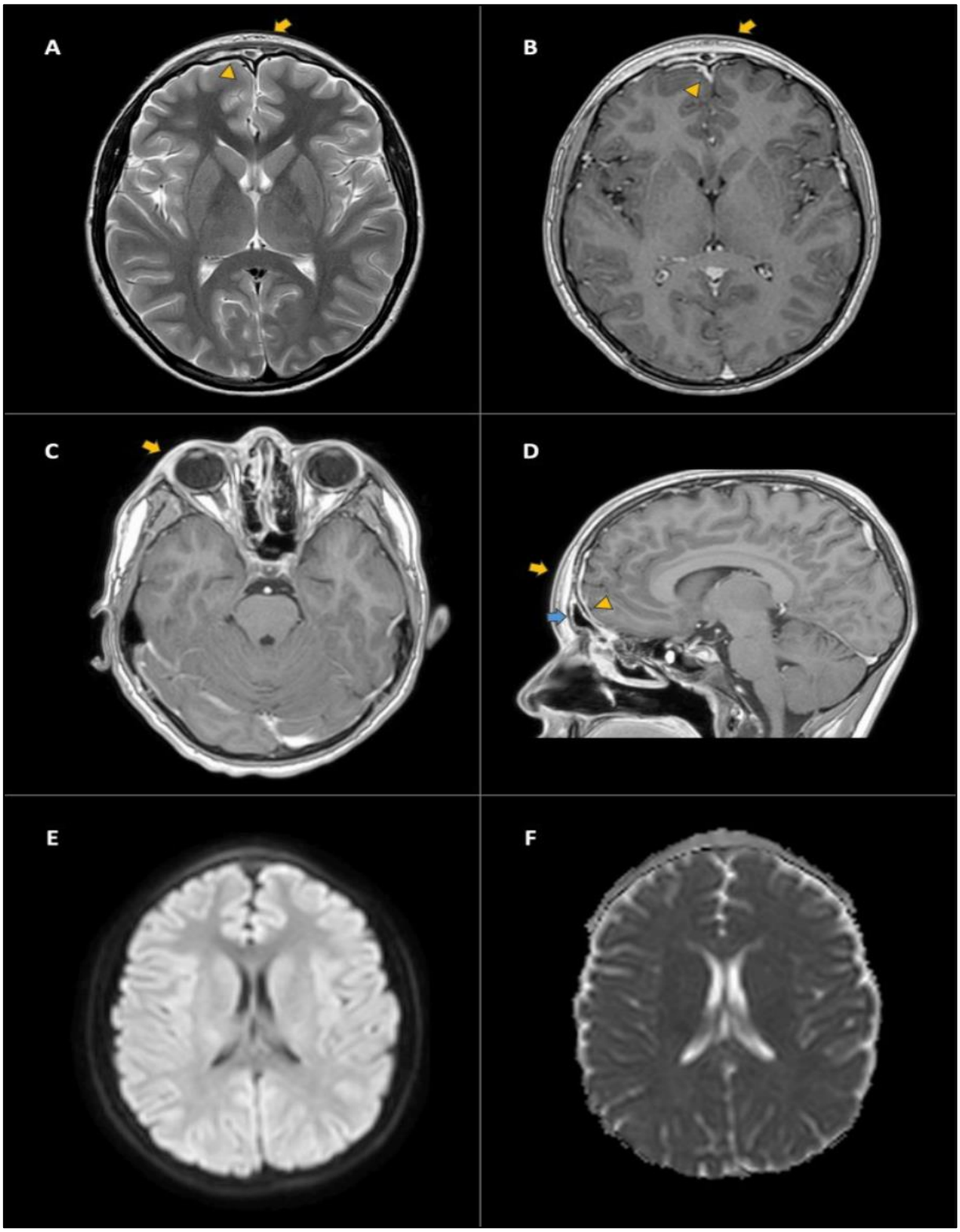

Fig 7 Contrast-Enhanced MRI of the Skull (Control).

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/26apr1620

A. T2 - Axial: Resolution of inflammatory changes and abscess in the frontal soft tissues (Arrow). Residual thickening and enhancement of the frontal sinus (Arrowhead).
B. Contrast-enhanced T1 - Axial: Resolution of inflammatory changes and collection in the frontal soft tissues (Arrow). Residual leptomeningeal enhancement (Arrowhead). Resolution of frontal epidural collection.
C. Contrast-enhanced T1 - Axial: Significant reduction in edema and enhancement of the right periorbital soft tissues (Arrow).
D. Contrast-enhanced T1 - Sagittal: Resolution of inflammatory changes and collection in the soft tissues of the forehead (Yellow Arrow). Residual thickening and enhancement of the frontal sinus (Blue Arrow). Residual leptomeningeal enhancement (Arrowhead).
E-F. DWI and ADC Map: No areas of restricted diffusion due to the resolution of epidural and frontal soft tissue abscesses.

T2: T2-weighted MRI; T1: T1-weighted MRI; DWI: Diffusion-weighted imaging; ADC: Apparent diffusion coefficient.

III. DIFFERENTIAL DIAGNOSIS

Several conditions may present with forehead swelling and should be distinguished from PPT.

- *Frontal Cellulitis*

Infection limited to the superficial soft tissues of the forehead without involvement of the frontal bone [28].

- *Subgaleal Abscess*

Infection located between the periosteum and the galea aponeurotica and usually unrelated to frontal sinus infection [29].

- *Frontal Bone Tumors*

Primary or metastatic bone lesions that may present with localized swelling but lack features of infection [30].

- *Traumatic Hematoma*

Localized blood collection following blunt trauma to the forehead usually resolves without systemic signs of infection [31].

➢ *Terminological Consistency*

Despite variations in terminology across literature, most contemporary authors describe Pott's puffy tumor as a clinico-radiological entity consisting of three key components.

- Frontal sinus infection
- Osteomyelitis of the frontal bone
- Subperiosteal abscess producing forehead swelling

This framework provides a consistent basis for diagnosis and reporting in clinical studies [32].

IV. COMPLICATIONS

Complications of PPT can be classified into intracranial complications, vascular complications, and extracranial complications. Intracranial complications are common among children (100% cases) compared to adults (60 – 85% of cases) [32], and these include subdural empyema, epidural empyema, frontal brain abscess, pneumocephalus, acute meningitis, cerebritis, and fistula formation [1, 25, 28, 28]. Extracranial complications include periorbital edema, diplopia, exophthalmos, and skin fistulas [28]. Vascular complications include cavernous sinus thrombosis, cortical venous thrombosis, and septic sinus thrombophlebitis [1, 29, 33]. Some of these complications can remain asymptomatic until PPT advances to later stages [29].

V. MANAGEMENT STRATEGIES

The treatment of PPT requires a prompt approach to limit the spread of infection. This requires a multidisciplinary approach (ENT surgeons, neurosurgeons, ophthalmologists, and bacteriologists) [26, 33], combining medical and surgical management, reducing the risk of complications, and increasing the chance of a great recovery [16, 24]. The gold standard in the therapy of PPT is calculated antibiotic therapy in combination with an operative drainage of the infection.

➢ *Medical Management*

Patients with PPT should commence on high-dose broad-spectrum antibiotics with good CNS penetration [33], and the choice of antibiotics should be guided by bacteriologists whilst awaiting blood culture and sensitivity results. The most commonly used antibiotics are third-generation cephalosporins, metronidazole, penicillin, or vancomycin, which should be started upon clinical suspicion of PPT [33] and continued for a minimum of 6–8 weeks post-surgical intervention [25, 33].

➢ *Surgical Management*

There are various surgical options available for the management of PPT, including endoscopic drainage, craniotomy, and frontal sinusotomy [34]. Surgery aims to drain abscesses, resect osteomyelitic bone, remove bone erosion or large collections, and re-establish frontoethmoidal drainage [1, 33 - 34]. Functional endoscopic sinus surgery (FESS) is the preferred surgical approach for cases without significant bone necrosis or intracranial extension because it is minimally invasive and reduces morbidity [22, 35]. In severe cases with bone necrosis or intracranial extension, including intracranial abscesses, a neurosurgical approach, such as craniotomy or frontal sinusotomy, is required [16]. Following treatment, patients need to be followed with serial MRI scans to ensure disease resolution [22].

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VI. OUTCOME AND PROGNOSIS

The prognosis of PPT depends on the individual case, early recognition, and prompt treatment [35]. Prompt diagnosis and treatment yield a good prognosis and prevent complications [36 - 37]. PPT is a rare disease, so the exact mortality rate is unknown; however, in a recent systematic and meta-analysis of case reports, the authors reported a mortality rate of 1.6% [22]. The morbidity rate of PPT ranges from 60–85%, with intracranial complications being the most common [35].

VII. FUTURE DIRECTIONS

- *Diagnostic Delays, Awareness, and Misdiagnosis.*

Diagnostic delay of Pott's Puffy Tumor (PPT) can lead to severe life-threatening intracranial complications due to the extension of frontal bone osteomyelitis, often requiring prolonged surgical intervention and intensive antibiotic therapy.

Pott's Puffy Tumor is often misdiagnosed as simple forehead trauma or swelling, especially in adults, where it is less common. Early recognition is essential, yet PPT symptoms often overlap with uncomplicated sinusitis [38]

Forehead swelling, nasal congestion, and headache may be present without systemic signs such as fever, further obscuring diagnosis. Computed Tomography (CT) is highly sensitive for detecting bony erosion, while MRI is superior for evaluating intracranial complications, including epidural abscess, subdural empyema, and pachymeningitis [1].

Pott's Puffy Tumor can present differently in diabetic patients due to their increased susceptibility to infections. Diabetic patients may present atypically, such as with delayed onset. [39-40]

Diabetic patients with high susceptibility to severe infections and compromised immune function should be closely monitored. I also believed that older individuals with diabetes may have masked symptoms, making diagnosis difficult and delayed.

A futuristic proposal to rename this rare tumor will undoubtedly help clinicians improve diagnosis and reduce confusion, as the word "Tumor" often leads to misdiagnosis or to it being ignored, rather than treated as a medical emergency. The change of name will also clarify the pathophysiology, as changing it to "Abscess" emphasizes that it is a serious infectious process requiring immediate intravenous antibiotics and surgical drainage. It will also increase suspicion because using a phrase like "Subperiosteal abscess" may prompt more rapid imaging (CT/MRI) when patients present with unexplained forehead swelling [39,40,41].

In conclusion, I believe that changing the name of Pott's Puffy Tumor to Pott's Puffy abscess will better reflect the underlying pathophysiology – a subperiosteal abscess and frontal bone osteomyelitis – rather than a neoplasm.

- *Standardized Treatment Algorithms and the Need for Multicenter Outcome Data.*

Future treatments for Pott's puffy tumor (PPT) should focus on a multidisciplinary, minimally invasive approach, emphasizing early MRI diagnosis, swift endoscopic sinus surgery (ESS) to drain abscesses, and 4–8 weeks of targeted IV antibiotics[40]. There is a shift away from open craniotomy.

Minimally invasive surgery for Pott's puffy tumor will probably offer significant benefits over traditional open surgery, and benefits could include reduced morbidity, faster recovery, and minimal to no visible facial scarring[41,42,43]. A multidisciplinary approach to treating Pott's puffy tumor will reduce high morbidity and mortality rates. Collaboration among specialties such as otolaryngology (ENT), neurosurgery, pediatrics, radiology, and infectious diseases will ensure comprehensive care for this potentially fatal condition [41,44].

Multicenter outcome data on Pott's Puffy Tumor (PPT) are crucial, as it predominantly relies on and is often limited by evidence from small case reports or single-center studies. A collaborative, multi-institutional approach is necessary to establish standardized treatment protocols and improve patient outcomes for this rare condition[44]. To increase multicenter outcome data on Pott's puffy tumor (PPT), efforts must shift from isolated case reports to more collaborative and structured networks. Key strategies include establishing international, multidisciplinary registries, employing standardized, evidence-based reporting guidelines, and utilizing online, patient-driven, or multi-institutional registry initiatives to capture data on this rare condition.

VIII. CLINICAL PEARLS AND PITFALLS

Common diagnostic delays for Pott's puffy tumor (PPT) are often due to its indistinct early presentation, its mimicry of less severe conditions, and its rarity in the post-antibiotic period. Forehead swelling in adolescents may at times be misattributed to benign conditions such as acne, sebaceous cysts, minor trauma, or insect bites, leading to diagnostic delay. Also, prior treatment with broad spectrum antibiotics may suppress symptoms even when the underlying pathogenesis of osteomyelitis might continue, and also because of its rarity, some clinicians with few years of experience who had never had the privilege to clinically experience or treat the condition or those with vague knowledge to distinctly identify its symptoms may not immediately order contrast-enhanced computed tomography (CT) or MRI, which are necessary to visualize bony erosion, and this will cause a substantial delay in diagnosis.

Clinicians should pay closer attention to patients with forehead swellings and unexplained headaches or pain, especially when pressing the area above the bridge of the nose or along the eyebrows, and to those with recent or past sinusitis. Also, recent, or past use of antibiotics or immunosuppressants should be verified with patients with

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forehead swelling/headaches, as these medications can suppress or mask the vital symptoms of Pott's puffy tumor, similar to immunosuppressive conditions such as diabetes.

IX. CONCLUSION

A rare form of frontal bone osteomyelitis with potential life -threatening capability, with misnomer nomenclature tagged Pott's puffy tumor (PPT), has been diagnosed sporadically all over the world. It is mostly as a result of severe complications of frontal bone sinusitis with significant risk of neurological manifestations, systemic and intracranial spread, and high mortality and morbidity if not adequately managed. There is a need for health care providers to have a high index of suspicion for early detection, as the initial presentation may be subtle or mistaken for benign conditions.

Multidisciplinary and intradisciplinary interventions are essential for rapid detection and appropriate, adequate imaging techniques. The use of combined long-term antimicrobial therapy and definitive surgical drainage or debridement remains the cornerstone of treatment and is strongly correlated with excellent clinical recovery when instituted early. The establishment of greater healthcare provider awareness, a fast and efficient referral system, and clear, evidence-based diagnostic and therapeutic protocols and algorithms is imperative to reduce delays in care, preventable complications, and optimize long-term patient outcomes.

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