

# Peri-Orbital Necrotising Fasciitis

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Necrotising fasciitis is a life threatening infection involving fascia and necrosis of subcutaneous tissue. Peri orbital necrotizing infection has a better prognosis than that of necrotizing fasciitis of any other part of body. Early diagnosis and debridement is the treatment of choice. Here we report two cases of peri-orbital necrotizing fasciitis.

**Key Words:** Peri-orbital, Necrotising fasciitis, Debridement

## Introduction

Necrotising fasciitis is a life threatening infection where skin and subcutaneous tissue gets affected. It is rapidly spreading disease where necrosis extends along superficial fascial plane. Generally NF develops in area of compromised skin integrity. The portal of entry usually is a trivial trauma or surgical wound. However ,no definitive cause can be found in upto 30-50% of cases.<sup>1-3</sup> Few co-morbid conditions are found associated with necrotizing fasciitis like Diabetes Melitus (31-44%), Obesity (28%), Smoking (27%), Alcoholic abusers (17%),Cirrhosis(8-15%), Malignancy(3%), Corticosteroid therapy(3%),and Chronic renal failure(3%).<sup>4-5</sup> The documented incidence of NF in literature is reported to be 0.4 cases per 100,000 in UK, but Indian scenario is not clear owing to paucity of literature in our setting.<sup>6</sup>

Morbidity and mortality of NF is very high but it vary according to area involved. Per orbital necrotizing fasciitis is very rare with incidence reported in UK .24 per 1,000,000 per year.<sup>7</sup> It is generally thought to be the least severe form of NF with best prognosis.<sup>8</sup>

## Case Report

**Case 1** A 45 yr old male, chronic alcoholic presented to us with a history of fall after having alcohol. During fall he got hit by glass table over face. The patient developed redness and swelling over left cheek, eye (peri orbital area) after 6 hrs . Patient didn't take any treatment for that. Three days after the fall, patient developed gangrene of peri orbital skin. He came to our OPD fourth day after fall. On examination he was febrile. His both upper and lower eyelids were markedly swollen and there was slough over both the lids. Edema and erythema was extending over to the left cheek. At that time eye examination was not possible as he was not able to open eye but there was no

proptosis.

We sent the lab investigations of the patient,took the patient to operation theatre and debrided the gangrenous skin and subcutaneous tissue ,removed the slough.Patint was put on IV antibiotics Inj Piperacillin and Tazobactam,Inj Amikacin and daily dressings wee done. Repeated debridements were done as and when required. Wound swab was sent for culture and sensitivity. Slowly swelling started decreasing and granulation started appearing. When swelling subsided completely we did complete eye examination. His visual acuity was normal(6/6) and ocular movements were normal. Lid margins and lashes were spared.

It took almost 15 days for healthy granulation tissue to appear. When culture report showed no organism and there was healthy granulation tissue we took the patient for reconstruction. Under GA taking all aseptic precautions split skin graft was harvested from his left arm medial aspect and used to cover the defect of both upper and lower eyelids.Tie over dressing done and IV antibiotics continued. Postoperative period was uneventful. Graft uptake was 100% and patient was now able to open and close the eye and was highly satisfied.

(Figure 1-6)



**Case 2** 7yr old male child presented to our OPD after a trivial trauma to face at school. At school children were playing with lid of dustbin and this child got hit by it over rt. Side of face. Patient presented to us with swollen right eye, gangrenous upper eyelid. The child was not able to open the eye(right). We immediately sent the lab investigations, took the child to

operation theatre and started debridement. After debridement patient was put on IV antibiotics piperacillin, tazobactam and injection amikacin. Daily dressings were done. Repeated debridements were done as and when required. Wound swab sent for c/s. After ten days swelling subsided 90%, child was able to open eyes. He was again taken for detailed examination of eye. His visual acuity was normal vision 6/6, ocular movements were normal.

When wound got covered with healthy granulation tissue, and culture was negative for any organism we took the patient for reconstruction. Under GA, SSG was harvested from his left arm and was used to cover raw area of upper eyelid. Patient was put on IV antibiotics, analgesics. Postoperative period was uneventful. Graft uptake was 100%. Patient was able to open and close the eye and relatives were very satisfied. (Figure 7-11)



## Discussion

Necrotising fasciitis also known as flesh eating disease can develop secondary to penetrating trauma or blunt trauma, any skin infection or any ear infection, cervical adenitis or peritonsillary abscess in head and neck region.<sup>9</sup> In 30% of cases generally no precipitating factors are found.<sup>10</sup> Necrosis develops as a result of pathogenic invasion and polymorphonuclear leucocyte infiltration causing vascular thrombosis and ischaemia leading to gangrene of the subcutaneous fat and dermis.

As periorbital skin is very thin and there is paucity of subcutaneous tissue in periorbital area, necrosis occur very early than in other parts of the body.<sup>11</sup> Complications can occur in 66% of cases with periorbital necrotizing fasciitis with mortality of 10%.<sup>7</sup> whereas mortality of NF on average ranges between 20% and 35%<sup>10</sup>,<sup>12</sup> but has been cited as high as 76%.<sup>13</sup>

In 13% of patients visual loss can occur and can be due to orbital spread, corneal perforation or central retinal artery occlusion.<sup>14</sup> If not treated early can lead to death due to septic shock and multiorgan failure.

Management of preorbital necrotizing fasciitis involves aggressive antimicrobial treatment along with early surgical debridement of the necrotic tissue. Fact that thrombosis around the affected site lead to inability of intravenous antimicrobial treatment to reach the tissue reducing its effectiveness. When we surgically debride the wound the number of organisms and toxin load decreases.

In our patients we have done early surgical debridement and given higher IV antibiotics and ended up with positive outcomes.

## References

1. Sarani B, Strong M, Pascual J, Schwab CW. Necrotizing fasciitis: current concepts and review of the literature. *J Am Coll Surg.* 2009; 208:279–88.
2. Wong CH, Chang HC, Pasupathy S, Khin LW, Tan JL, Low CO. Necrotizing fasciitis: clinical presentation, microbiology, and determinants of mortality. *J Bone Joint Surg Am.* 2003;85-A(8):1454–60.
3. Vayvada H, Demirdover C, Menderes A, Karaca C. Necrotising fasciitis in the central part of the body: diagnosis, management and review of the literature. *Int Wound J.* 2013;10(4):466–72.
4. Angoules AG, Kontakis G, Drakoulakis E, Vrentzos G, Granick MS, Giannoudis PV. Necrotising fasciitis of upper and lower limb: a systematic review. *Injury.* 2007;38(5):S19–26.
5. Goh T, Goh LG, Ang CH, Wong CH. Early diagnosis of necrotizing fasciitis *Br J Surg.* 2014;101(1):119–25.
6. Ellis Simonsen SM, van Orman ER, Hatch BE, Jones SS, Gren LH, Hegmann KT, et al. Cellulitis incidence in a defined population. *Epidemiol Infect.* 2006; 134:293–9.
7. Flavahan PW, Cauchi P, Gregory ME, Foot B, Drummond SR. Incidence of periorbital necrotizing fasciitis in the UK population: a BOSU study. *Br J Ophthalmol* 2014;98:1177–80.
8. Rajak SN, Figueira EC, Haridas AS, Satchi K, Uddin JM, McNab AA, et al. Periocular necrotizing fasciitis: a multicenter case series. *Br J Ophthalmol* 2016;100:1517–20.
9. Ali AH, Salahuddin Z, Ismail H, Sofi AIM, Mohamad I. Debridement of facial necrotizing fasciitis via bicoronal flap. *Egypt J Ear N Throat Allied Sci* 2017; 18:287–9.
10. Lazzeri D, Lazzeri S, Figus M, Tascini C, Bocci G, Colizzi L, et al. Periorbital necrotizing fasciitis. *Br J Ophthalmol* 2010;94:1577–85.
11. Alvarez Hernandez DA, Chavez AG, Rivera AS. Facial necrotizing fasciitis in adults. A systematic review. *Heighpubs Otolaryngol Rhinol* 2017;1:020–31.
12. Wong CH, Chang HC, Pasupathy S, Khin LW, Tan JL, Low CO. Necrotizing fasciitis: clinical presentation, microbiology, and determinants of mortality. *J Bone Joint Surg Am* 2003;85-A:1454–60.
13. van Stigt SFL, de Vries J, Bijker JB, Mollen RMHG, Hekma EJ, Lemson SM, et al. Review of 58 patients with necrotizing fasciitis in the Netherlands. *World J Emerg Surg* 2016;11:21.
14. Mehta R, Kumar A, Crock C, McNab A. Medical management of periorbital necrotizing fasciitis. *Orbit* 2013;32:253–5.