Case study

Post mastectomy and radiation therapy - Complex regional pain syndrome -a case report.

Abstract:

Complex regional pain syndrome which is a rare syndrome following an injury or trauma, is an extremely painful condition. Diagnosis of this condition is not easy. They present with various symptoms like allodynia, hyperalgesia, asymmetry of temperature and sweating ,restricted range of motion. Identifying and treating this condition at earlier stage is important. There are different treatment options like pharmacological (NSAIDs, Anticonvulsants, Antidepressants, neuromodulators) and interventional techniques like Stellate ganglion block, Thoracic Sympathetic Ganglion block, Lumbar sympathetic block , Neurostimulation.

In this case report we present a case of 52 year old female post mastectomy and radiation therapy developing CRPS of left upper limb, which was diagnosed and ma[illegible]with diagnostic thoracic sympathetic ganglion block followed by ther[illegible]

Keywords: CRPS,Complex regional pain syndrome, Tho[illegible] Radiofrequency ablation,pain medicine

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Introduction :

Complex regional pain syndrome (CRPS) is a extremely heter[illegible]s, rare disease, presenting with moderate to severe pain. CRPS is a painful posttr[illegible]c disorder, which is one of the classic example of neuropathic pain. It is still not co[illegible]ely understood and extremely difficult to treat.(1)

International Association for Study of Pain defined CRPS as a “Collection of locally appearing painful conditions following a trauma,which chiefly occur distally and exceed in intensity and duration of the expected clinical course of original trauma ,often resulting in considerably restricted motor function”(1)(2)(3).

Case Report :

52 Year old female operated case of left sided modified radical mastectomy in 2019 following which she completed 8 cycles of chemotherapy no hormonal therapy was given as receptor for ERPR was negative, after which she was doing apparently well after surgery.

Then she came with complaints of severe pain in left upper limb to surgery OPD,were they managed the patient with NSAIDs, but she did not have any significant pain releief.

Considering her condition, they referred her to Pain OPD. On evaluation she had Allodynia, resting pain , skin colour change, Edema, Reduced range of motion. She was treated with Duloxetin 20 mg BD ,Gabapentin SR450mg HS for a month then we increased dose of Duloxetin to 30mgBD and Gabapentin 450mg to BD for an another month , but No significant pain relief was observed. So we planned for intervention - Diagnostic Sympathetic Ganglion block. All laboratory blood reports like hemoglobin, platelet count, PT/INR, liver function and renal function test was normal, Procedure was explained to the patient in detail and written informed consent was obtained. Intravenous access was secured with 20 G intracath , montiors non invasive blood pressure, Spo2,ECG was attached.

Patient was given prone position , under all aseptic precautions,Thoracic spine region was cleaned and drapped.T2 and T3 level was identified using C-arm guidance and puncture site was infiltrated with local anesthetic. Diagnostic Symp ine at T2,T3 level was given with 2% lignocaine un t subjective results by the patient with n l Radiofrequency ablation was planned next day

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After giving local infiltration, in the anteroposterior(v and then directed to 15 degree cephalad and 15 degree in the left lateral position , he help of 10 cm length 18gauge disposable radiofrequency needles with 5-mm acti p connected to Radiofrequency device ,Sensory stimulation was done at 0.3to 0.5 v to co m needle position.Motor stimulation at 1 V to 2.5 V revealed no contraction . Radiofrequency thermal coagulation at 90°C for 90 seconds was done for 2-3 times . 2% lidocaine 1 mL + 1ml of methylprednisolone was injected after coagulation.. Increase in temperature of her left hand was felt my the patient. She was kept in post op room for observation for 6 hours .Follow-up was done after 15 days in which patient had 80% reduction in pain, and after 1 month almost 90%pain relief was observed.

DISCUSSION:-

Clinical picture of Complex regional pain syndrome first described more than 100 years ago by Sudeck and in 1860 by Mictchell during the American Civil War.Literature gives several names for this syndrome such as Sudeck's atrophy,Erythromelalgia , causalgia ,Posttraumatic dystrophy, Reflex sympathetic dystrophy ,Traumatic angiospasm, reflex neurovascular dystrophy .After a meeting by International association for study of pain (IASP) which was conducted in orland in 1993 , the term Complex Regional Pain Syndrome was agreed upon.IASP also divided CRPS into two types,Type I and Type II.

Type I is with no evidence of nerve damage in the affected limb usually secondary to injury or trauma,which is most common. Whereas in type II there will be demonstrable nerve damage.(2)

Recently 3rd type has been added i.e NOS(Not otherwise specified.(3)

Incidence of CRPS varies from 5.46 to 26.2 pe 100,000 person per year. It usually follows any injury, trauma,fracture or surgery. In our ca the surgery was the preceding event.Literature says women are more often affected than m with mean age between 47 to 52yrs.(4)

Pathogenesis :

Pathogenesis of CRPS being Ce ensitization, Peripheral sensitization,Neurogenic inflammation, Dysfunctional efferen pathway(5,6)

Peripheral mechanisms includ l dysfunction in the affected limb causing hypoxia because of nitric oxide and increased level of endo such as interleukin 6 (IL-6) and tumor n nation(7).

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Nociceptive C-fibers ich is responsible for neurogenic inflammation , which is observed as odema , vasodilation and sweating in CRPS,this was demonstrated by elevated levels of calcitonin generelated peptide (CGRP) and substance P (8).

Denervation hypersensitivity can be caused by peripheral degeneration of small fiber neurons in the skin of affected limbs, leading to inappropriate firing.

Nociceptive afferent input may be caused by an increase in the number of alpha 1 receptors in the affected extremity, increased peripheral alpha adrenergic receptor hypersensitivity, and chemical coupling between sympathetic and nociceptive neurons in the skin of CRPS affected limbs(8).

Dysfunctional efferent motor pathways may lead to involuntary movements, dystonia, and decreased range of motion.

Central mechanisms, such as upregulation of N-methyl-D-aspartate (NMDA) causing supraspinal sensitization,Ectopic signal generation and neurokinin-1 (NK-1) receptor interaction, have also been described. Psychological factors has also been consider ,but studies show no association between CRPS and psychological factors(10)

There are few studies showing genetic predisposition of certain HLA loci to CRPS susceptibility.(9)

Diagnosis:

Diagnosing CRPS is very difficult since there is no gold
purely based on history and physical examinati
pain gave a clinical diagnostic criteria which was b
patient.Now Budepest Criteria is widely used to diagnose C ble1)

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Table 1. Budepest Criteria is widely used to diagnose CRPS

All the criteria must be met:

1. Continuing pain that is disproportiona to the inciting event
2. 1 sign in 2 or more of the categori s below
3. 1 symptom in 3 or more of the categories below
4. No other diagnosis can better explain the signs and symptoms.

Category	Signs and symptoms
Sensory	Allodynia(pain to touch or temperature sensation and/or deep somatic pressure and/or joint movement) and/or hyperalgesia(to pinprick)
Vasomotor	Temperature asymmetry and/or skin color changes and /or skin color asymmetry
Sudomotor/edema	Edema and/or seating changes and/or sweating asymmetry
Motor/Tropic	Decreased range of motion and /or motor dysfunction(weakness, tremor,dystonia) and/or trophic changes(hair,nail,skin)

Table:-1 Budapest Criteria

Name of table must be above the table.

Stages of CRPS:-

In Stage I of CRPS there is severe pain limited to site of injury with increased sensitivity to touch ,localized swelling , skin is usually red,warm and dry along with increased sweating, patient responds rapidly in this stage.

In stage II pain becomes more intense and severe, swelling tend to spread and muscle weakness begins.

In stage III there will be marked muscle weakness, pain becomes intractable and may involve entire limb,eventually this becomes irreversible.

Differential diagnosis :-

Differential diagnosis for this syndrome includes,

Neuropathic pain syndromes:- Peripheral polyneuropathy,nerve entrapment, Radiculopathy,Postherpetic neuralgia, motor neuron disease.

Inflammation:-Erysiplelas,Bursitis,Rheumatologic disease. Myofascial pain-Fibromyalgia.

Psychiatric problem- Somatoform pain syndrome.(9)

Treatment:-

Treatment options that is available are both invasive and non invasive.Physiotherapy and physical rehabilitation is very important in CRPS. Pharmacological options are Analgesic ,anti-inflammatory drugs ,spasmolytics,corticosteroids, free radical scaven[illegible]C) and biologics (e.g. tumour necrosis factor-α (TNF-α) inh[illegible] neuromodulators,Antidepressents. Medication should be given[illegible]

If not responding to pharmacological treatment . Interven[illegible] like,for upper limb Stellate ganglion block,Thoracic Sympathetic[illegible]o Lumbar sympathetic block , epidural analgesia , Neurostimulati[illegible]ch involves the surgical implantation of electrodes into areas of the brain or spinal co[illegible] allow electrical stimulation of local neural tissue in order to modulate neural signals and [illegible]ocessing,

Other techniques are physiotherapy, acupunture.In our patient we considered Thoracic sympathetic nerve block and not stellate ganglion block because, stellate ganglion is comparitively bigger structure , there are chances of inadequate block, Alcohol and phenol are

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used as an agent in stellate ganglion block which can be dangerous as it can involve vertebral artery , vagus and phrenic nerve and Effect of stellate ganglion block is only 6-9mths.

Advantage of Sympathetic nerve block is that it is very precise and it will last longer for 2-3 years. Disadvantage being it is costly, and technical expertise is required(9)

Write conclusion in detail

CONCLUSION:-

CRPS is not only difficult to diagnose but also its challenging to treat. This is a debilitating disease and it can affect the quality of life causing not only physical but also social disability. To recognize, diagnose and treat CRPS we need thorough knowledge of the subject. So referring the patient to pain OPD is important to diagnose and treat the condition early as it becomes difficult to treat in later stages.

Reference style should be in uniform font style and uniform way.

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