**INTRODUCTION**

Gallium maltolate (GaM) is reported to produce analgesic and anti-inflammation effects when applied topically to the skin or mucous membranes. In several case studies involving neuropathic pain, topical GaM has demonstrated remarkable pain relief, even when other analgesic agents had been ineffective. GaM has also been studied as a local agent in clinical trials, which found no significant toxicity at doses a thousand times higher than the topical doses.

**CLINICAL STUDY**

This study was initiated to investigate the efficacy of topical GaM in the treatment of highly refractory orofacial pain following surgery and/or radiation therapy. The topical GaM used was the commercial product “Gallixa skin cream”, which consists of 0.5% of gallium maltolate in an emulsion base of half water and half hydrophilic petrolatum. Four subjects were studied; these were all patients who sought treatment for severe, refractory orofacial pain at the multidisciplinary clinic for the treatment of pain (CINDOR) in Curitiba, Brazil.

**CASE 1 – NEUROPATHIC OROFACIAL PAIN RESULTING FROM SCHWANNOMA SURGERY AND RADIOTHERAPY IN THE CEPHALIC TRIGEMINAL REGION:** A 38-year-old female patient presented with paroxysmal shock-like pain, which had been worsening for six months. In the V2 and V3 divisions of the left trigeminal nerve, MRI evaluation revealed a schwannoma in the left trigeminal region, occupying the infratemporal fossa and mastigatory space, with dimensions of 3.3 cm (lateral-lateral), 2.3 cm (antero-posterior) and 2.3 cm (crano-caudal). The tumor was removed via perioral craniotomy at the Neurological Institute of Curitiba, Brazil. After surgery, the patient started experiencing intense pain in the left V2 division, with burning-shock-like pain and paresthesia in divisions V2 and V3. The patient was then prescribed daily mistigitory cream 150 mg, carbamazepine 600 mg and pregabalin 150 mg, which provided complete symptomatic relief. The patient then began radiotherapy sessions; shortly after, the patient started experiencing uncontrollable shock-like pain located in the V2 orofacial region, with extreme allodynia and hyperalgesia. The drug doses were increased, but no significant improvement in the symptoms resulted. Because the patient had become refractory to drug treatment, topical GaM, applied as a thin coating four times per day, was then prescribed. The patient returned in 30 days, which was ineffective. The patient then sought specialized care at CINDOR, but was then weaned from all use of pregabalin and duloxetine, which had been in use for 3 months. Currently, the patient is asymptomatic, awaiting the installation of dental implants.

**Molecular structure of gallium maltolate**

**CASE 2 – NEUROPATHIC OROFACIAL PAIN RESULTING FROM NERVE INJURY ASSOCIATED WITH DENTAL IMPLANT INSERTION IN THE MANDIBULAR REGION:** A 66-year-old female patient underwent surgery for the placement of a dental implant in the jaw near the left premolar region. She reported unbearably intense pain, which had started immediately after surgery, in the left mental foramen region, together with dysesthesia, mood swings, and difficulty sleeping (1 week after implantation). X-rays showed that the implant itself had been removed by the dentist 7 days after insertion. X-rays showed that the implant had been above the left mental foramen near the nerve; the implant pin had likely caused nerve impairment with extreme hyperalgesia in the mental foramen region, associated with ongoing burning pain. The patient was prescribed 3 mg bromazepam, 25 mg nortriptiline, 8 vitamins, and 10 mg oxycodeone daily. When the patient returned in 30 days, the pain had decreased by about 70%. The area of hyperalgesia and allodynia had become confined to the region near where the implant had been removed. Due to the patient’s continued localized pain, she was prescribed 0.5% GaM topical cream as an adjunct treatment, to be applied four times per day to the painful spot. Results: Thirty days later, the patient was completely asymptomatic, with no pathological facial sensations, and experienced an improved quality of life. After 60 days, the patient remained asymptomatic, which was confirmed with QST. The nortriptiline dose was reduced to 10 mg/day, the bromazepam was discontinued, the oxycodone dosing reduced to the needed, and the topical GaM dosing reduced to twice per day. After 90 days, the patient remained asymptomatic and no somatosensory abnormalities were observed. The patient reported that she had returned to a normal lifestyle, with no pain, restful sleep, and a high quality of life. All medications were discontinued.

**CASE 3 – LOCALIZED NEUROPATHIC PAIN RESULTING FROM NERVE DAMAGE CAUSED BY INSERTION OF A DENTAL IMPLANT:** A 54-year-old female patient received an autogenous bone graft with implantation of a dental implant in the jaw near the left premolar region. Immediately after surgery the patient reported burning and electric shock-like pain in the V3 dermatome, together with hyperalgesia and allodynia. The patient was then prescribed a combination of pregabalin and duloxetine. CT imaging showed that two anchoring screws were in intimate contact with the inferior alveolar nerve. After diagnosing severe nerve damage (neurotmesis), the patient was treated with 150 mg pregabalin and 60 mg duloxetine daily; the intensity of pain remained moderate with continued hyperalgesia and allodynia. The two anchor bolts were then surgically retracted 2 mm to allow nerve decompression. The pain decreased, but the allodynia and hyperalgesia remained, together with localized burning pain near the mental foramen region. The patient then sought specialized care at CINDOR, 45 days after the procedure. CT imaging showed that the implant had been above the left mental foramen near the nerve; the implant pin had likely caused nerve impairment with extreme hyperalgesia in the mental foramen region, associated with ongoing burning pain. The patient was prescribed 3 mg bromazepam, 25 mg nortriptiline, 8 vitamins, and 10 mg oxycodeone daily. When the patient returned in 30 days, the pain had decreased by about 70%. The area of hyperalgesia and allodynia had become confined to the region near where the implant had been removed. Due to the patient’s continued localized pain, she was prescribed 0.5% GaM topical cream as an adjunct treatment, to be applied four times per day to the painful spot. Results: Thirty days later, the patient was completely asymptomatic, with no pathological facial sensations, and experienced an improved quality of life. After 60 days, the patient remained asymptomatic, which was confirmed with QST. The nortriptiline dose was reduced to 10 mg/day, the bromazepam was discontinued, the oxycodone dosing reduced to the needed, and the topical GaM dosing reduced to twice per day. After 90 days, the patient remained asymptomatic and no somatosensory abnormalities were observed. The patient reported that she had returned to a normal lifestyle, with no pain, restful sleep, and a high quality of life. All medications were discontinued.

**REFERENCES**


**AUTHOR AFFILIATIONS**

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