ORIGINAL RESEARCH

Management of a Series of Dental Extractions in a patient with Chronic Idiopathic Myelofibrosis- A Case Report

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ABSTRACT

Idiopathic myelofibrosis is a myeloproliferative disorder of the bone marrow with an unknown etiology wherein the marrow becomes fibrotic leading to anaemia, abnormalities in haemostatic mechanisms and decreased resistance to infections with secondary symptoms such as splenomegaly and hepatomegaly. Only few cases of dental care for myelofibrosis patients in a hospital under general anaesthesia have been documented in literature. Here we report briefly on the management and discuss a series of extractions performed on an idiopathic myelofibrosis male patient, 62 years of age, under local anaesthesia in our dental clinic with medical support and antibiotic prophylaxis. No post-operative sequel occurred.

KEYWORDS:Dental Extraction, Myelofibrosis,

INTRODUCTION

Myelofibrosis is a rare myeloproliferative disorder, which causes infiltration of bone marrow by fibres. The disease has an incidence rate of 1: 100,000 and is common in middle age.[1] It can present as a de novo disorder (primary myelofibrosis, PMF) or evolve secondary to other bone diseases such as Paget's disease, osteomyelitis and Albright's disease or other myeloproliferative neoplasms namely polycythemia vera or essential thromobo-cythemia.[2] A patient with myelofibrosis may be asymptomatic at an early stage and develop symptoms, such as haemorrhage, night sweats and weight loss as the disease progresses.[3] Mortality is generally due to infection, cardiac thrombosis, reduced blood cell count and bleeding.[1,3]

The potential challenges in treating the myelo-proliferative disorders arise due to erratic blood profiles and sometimes abnormal functioning of blood system in spite of their normal appearance.[4] During dental treatments of such patients, bleeding and thrombotic complications are of concern. Patients with impaired haemostasis, as seen in myelofibrosis, are more prone to post-operative bleeding, infection and impaired wound healing. Therefore the utmost care and consideration of the multitude of factors involved is needed while providing dental care to such patients.

In here, we discuss our experience with performing serial extractions on a patient with a history of myelofibrosis in our dental clinic under local anaesthesia with antibiotic prophylaxis.

CASE REPORT

We present a case report of a 62 year old Indian male patient who presented to our dental clinic with severe pain in the upper left quadrant region for a period of 4 days. Pain was reported to be continuous and dull in nature, and aggravated on mastication. Medical history revealed that the patient had been diagnosed with idiopathic myelofibrosis in 2004. As part of the treatment he had undergone splenectomy in 2005 and repeated blood transfusions, as advised by his haematologist and has since, been on regular medical care and medications such as prednisolone, thalidomide and lenalodimide. Bone marrow biopsy performed two years previously showed the normal histological features completely replaced by spindle shaped fibroblast and collagen, with scattered lymphocytes and plasma cells, few islands of adipocytes, and scattered megakaryocyte with abnormal, hyperchromatic, irregularly shaped nucleus. He admitted to being a chronic smoker and did not have any known drug allergies.

On intra oral examination, the patient had partially edentulous dentition with generalised periodontitis and pain on percussion on the upper left first premolar tooth which was periodontally weak and 'clinically' mobile and infected root stump in upper right second molar region (Figure 1). He also showed multiple tooth showing cervical abrasions, with over all poor oral hygiene. Since the patient's primary concern was pain relief, based on the chief complaint and examination, serial extraction of painful tooth, along with severely mobile teeth was

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decided upon as the treatment plan.

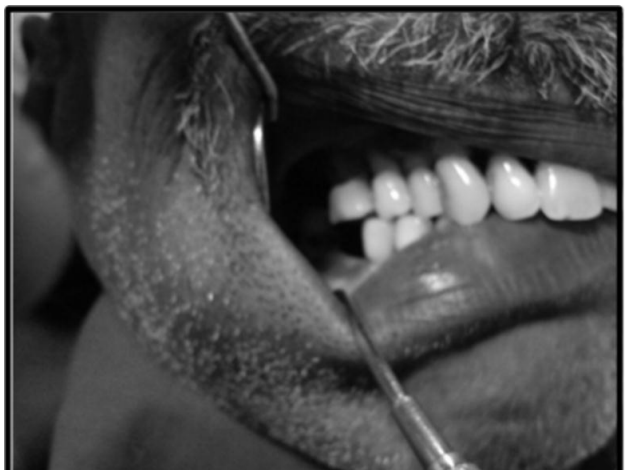

Figure 1: Pre-extraction: Upper right quadrant

The patient was asked to repeat the investigations to evaluate his health status. On viewing the blood reports he had low haemoglobin (6.9 gm/dl) and RBC count (2.09 million/cu mm). WBC (9700cells/cu mm), platelet (2.33 lakhs/cu mm) and bleeding time (3.30mins) clotting time (4.45mins) were within normal range. Other investigations are tabulated in Table 1. As per investigations, considering the low red blood cells count and haemoglobin level (less than 10 grams/dL) and unfavourable signs, such as massive splenomegaly and cytogenetic abnormalities and teardrop red blood cells, it is highly possible that our patient belonged to the advanced clinical stage.[5] On advice, patient to have one unit of whole blood transfused a day prior to the procedure with intravenous prophylaxis an hour before the extraction and to stop his myelofibrosis related drugs for 1 week.

Test description	Observed value	Biological reference interval
ERYTHROCYTES		
RBC count	2.09	4.0-5.2 mill/cu mm
Haemoglobin	6.9	11-14 gm%
Mean corpuscular volume	107.8	75-87 fl
Mean corpuscular Haemoglobin	33	27-32 pg
Mean corpuscular Haemoglobin concentration	36	31-37%
E.S.R.	94	Up to 3mm/hr
Packed cell volume	22.5	40-50%
LEUCOCYTES		
Total WBC count	9700	5000-15000/cu mm
Polymorphs	35	30-53 %
Lymphocytes	54	55-60 %
Eosinophils	08	2-7%
Monocytes	02	4-7 %
Basophils	01	0-2 %
PLATELETS		
Platelet count	233	200-490 thou/cu mm
Bleeding time	3.3	3-10 min
Clotting time	4.45	5-8 min
Prothrombin time	14.3	12-13 sec
APTT	38	30-50 Sec
INR	1.1	0.8-1.2

Table 1: Haematological Lab Report

Antibiotic amoxicillin 500 mg with clavulanic acid 125 mg and anti-inflammatory and analgesic: a combination of tramadol 37.5 mg and acetaminophen 325 mg were prescribed for five days. Patient was asked to report after five days for the procedure. As planned, one unit of whole blood was transfused a day prior to the procedure. Appointment was scheduled next day and intravenous antibiotics were given one hour before extraction.

Serial extraction in regular intervals of two to three days was considered in order to not majorly intervene with the treatment of myelofibrosis. Nerve block was given and patient was monitored for vital signs and saturation of haemoglobin with pulse-oxymeter before and throughout the procedure. Teeth were extracted quadrant wise, based on their periodontal status.

In the first appointment after the initial visit, the upper left premolar, along with the upper left first and second molars were extracted. After an interval of three days, upper right second premolar, first and second molars were extracted. The final serial extraction of lower central and lateral incisors was performed after three days of the second appointment. The extractions were completed in three appointments which spanned a period of around two weeks

All extractions were atraumatic and performed under sterile conditions with antibiotic prophylaxis. Bleeding was adequately controlled with sterile gauze and patient was monitored thirty minutes after the procedure for reviewing the primary clot formation and haemorrhagic tendencies. Adequate haemostasis achieved. Vitals signs were stable and patient was conscious, oriented and afebrile .The patient was reviewed a week after extraction and wound healing was satisfactory.[6] (Figure 2)

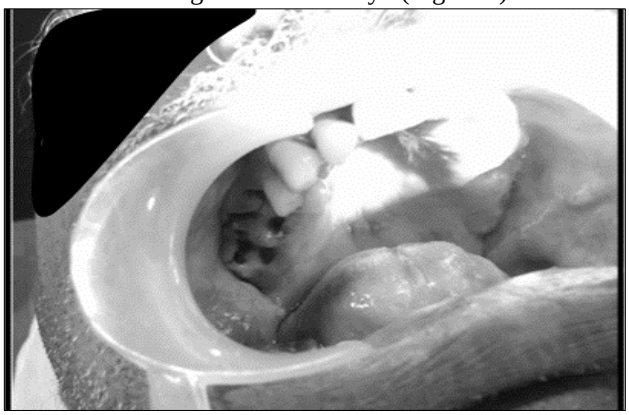

Figure 2: Post extraction: quadrant (One hour after extraction). There was no bleeding and primary clot formation was adequate

DISCUSSION

Previously very few cases of dental management of myelofibrosis patients have been reported. It is a condition that usually occurs in the sixth or seventh decade and has a wide range of patient prognostic and survival variability.[7,8]

Our patient belongs to the typical age during which myelofibrosis occurs and he has been surviving with myelofibrosis for ten years, he has also undergone splenectomy in the initial stage of his treatment and is now under medical care.

As mentioned, while blood investigations are critical, erratic blood profiles and sometimes abnormal functioning of blood system in spite of their normal appearance may be found. In our patient, the most prominent disturbances were noted in the red blood cells showing both a low red blood cell count and haemoglobin. As a part of his regular medical care, patient was provided whole blood transfusion. Thereafter, the patient was treated in our dental clinic after haematological investigation and physician consultation.

Infection is another critical concern in Primary myelofibrosis. In our case, though the total WBC count was adequate, polymorphs were low in number. Anticipating the possibility of infection and on the advice of the consulting physician, strict antibiotic coverage was maintained in the entire course of the procedure.[10]

Several platelet and coagulation abnormalities have been reported in idiopathic myelofibrosis by Meschengieser S et al,.[11] As such, failure of haemostasis is another primary concern. In our case the platelet count was deemed adequate but prothrombin and partial thromboplastin time were slightly elevated, a finding more common in chronic myeloproliferative disorders, such as myelofibrosis.[12] However, bleeding in this case was within the normal range and effectively controlled with pressure using sterile gauze. The coagulation profile and the post-operative events are consistent with the findings which suggested that there are only a few haemorrhagic abnormalities in primary myelofibrosis patients[13] and the frequency of such abnormalities is very low in myelofibrosis.[14]

In view of the pre-existing scope for altered wound healing, it was vital that the patient abstain from smoking and the patient was advised to that effect, so as to avoid complications such as dry socket.[15]

Patient was referred back to his haematologist after each dental appointment to continue his medical care. When the patient was reviewed after a week, the socket healing was found to be adequate. The post-operative recovery was deemed to be uneventful with the absence of any undesirable sequelae.

DISCUSSION

Myelofibrosis is a myeloproliferative disorder with bleeding and thrombotic complications.[16,17] Patients with impaired haemostasis, as seen in myelofibrosis, are more prone to post-operative bleeding, infection and impaired wound healing. This is a major concern in dental care, especially when involving extractions, and necessary precautions have to be exercised while treating such patients. We have carefully considered the medical condition of the patient, consulted the physician, and followed systemic precautions and intra-oral haemostatic measures with a complete review.

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