

ORIGINAL RESEARCH

The Role of Drainage after Total Knee ArthroplastyY. Thimma Reddy¹, S. Sreenivasa Reddy², A. Sundeep Kund³**ABSTRACT**

Introduction: Total Knee replacement {Total knee arthroplasty (TKA)} is a surgery which involves lot of soft tissue release and cancellous bone cutting and thus amounting to blood loss due to bone ooze after tourniquet release. Usage of a suction drain is debatable in such situation. Suction drain, drains out postoperative blood ooze from the joint and thus relieves pressure in the joint and decreases pain, swelling and decreases chance of infection. This study was conducted to clear myths of suction drain and to understand the use of suction drain after total knee arthroplasty.

Materials and Methods: This is a prospective randomised study of 100 patients of osteoarthritis Varus knees operated with cruciate substituting TKA, without patellar resurfacing.

Results: Results were assessed using Hospital for special surgeries scoring system (HSS) and knee society score (KSS) each time at discharge, 2 months followup, 6 months followup, 1 year followup, 5 year followup. We did not find any statistical difference between the two groups.

Conclusion: Many authors advocate use of suction drain following TKA but we did not find any added benefit. We are now not using suction drain in all routine TKA. This needs further study at more detailed level with further multi centric studies to prove this.

Results were calculated based on descriptive statistics with SPSS version 19.

Keywords: Total knee arthroplasty (TKA), suction drain, osteoarthritis knee, drain clamping.

How to cite this article: Y. Thimma Reddy, S. Sreenivasa Reddy, A. Sundeep Kund. The role of drainage after total knee arthroplasty. International Journal of Contemporary Medical Research 2015;2(4):1073-1075

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Source of Support: Nil

Conflict of Interest: None

INTRODUCTION

Total Knee replacement {Total knee arthroplasty (TKA)} is a surgery which involves lot of soft tissue release and cancellous bone cutting and thus amounting to blood loss due to bone ooze after tourniquet release. Usage of a suction drain is debatable in such situation. Suction drain, drains out postoperative blood ooze from the joint and thus relieves pressure in the joint and decreases pain, swelling and decreases chance of infection.^{1,2} However, due to loss of tamponade effect by using suction drain will lead to more bone ooze. Though the fact that the suction drain is of no use, many orthopaedic surgeons still use them after TKA.

The usage of autologous blood transfusion, tranexamic acid, fibrin binding substance, postoperative immobilisers and cold packs is more by surgeons where suction drains are placed after TKA, so as to reduce bone ooze and eventual blood loss. In the past few years, clamping of suction drain is gaining attention.^{1,2} The known fact that most of bone ooze occurs during the early postoperative hours, for creating a temporary tamponade environment in joint post TKA, authors advocate clamping of suction drain.³

This study was conducted to clear myths of suction drain and to understand the use of suction drain after total knee arthroplasty and to provide practical information for orthopaedic surgeons and medical care givers.

MATERIALS AND METHODS

This is a prospective randomised study of 100 patients from January 2010 to June 2010. All patients were of primary degenerative osteoarthritis varus knees. 62 patients were male and 38 were female. The age range was 65-80 years.

All patients were operated with medial parapatellar arthrotomy and standard varus TKR procedure with cemented cruciate substituting implant without patella resurfacing. After the operative procedure 50 cases (30 males and 18 females) were kept negative suction drain, 50 cases (32 males and 20 females) were without drain. The drain group were clamped for first four hours and then the clamp was released after four hours. And drain removal done after 48 hours. In both groups early mo-

bilisation of joint and weight bearing were started as pain tolerance (range from 24 to 72 hours). Wound dressing was done on post op day 2, 5, 8 and suture removal done on day 12. Patients were discharged after suture removal.

RESULTS

Results were assessed using Hospital for special surgeries scoring system (HSS) and knee society score (KSS) each time at discharge, 2 months followup, 6 months followup, 1 year followup, 5 year followup.

In drain group four cases required blood transfusion, no postoperative swelling, no ecchymosis, the mean knee flexion was 145 degree (135 to 155), no extension lag, stable knee, pain scale of 2 at 5 years, one case of superficial infection which subsided by regular dressing, no postoperative distal neurovascular compromise, no lysis of cement on 5 year followup. All patients were able to climb up and down stairs without holding a railing since 6 months followup.

In no drain group two cases required blood transfusion, 3 cases had postoperative swelling with ecchymosis but subsided with ice packs, the mean knee flexion was 140 degree (130 to 150), no extension lag, stable knee, pain scale of 2 at 5 years, two cases required change of dressing within 24 post surgery, no postoperative distal neurovascular compromise, no superficial infection and no lysis of cement on 5 year followup. All patients were able to climb up and down stairs without holding a railing since 6 months followup.

DISCUSSION

Although there is no established evidence to support the use of drains in total knee arthroplasty, they are thought to reduce the formation of a haematoma and the incidence of deep infection. Our study suggests that these perceptions are incorrect, in that we were unable to show a statistically significant benefit from the use of a single deep drain in cemented knee arthroplasty. Many authors prefer drains after total knee arthroplasty.^{1,3,4} After detailed review of literature, we observed that most of blood ooze occurs in first four hours post TKA. So, we clamped the drain group for first four hours and a comparative study was done between two groups with equal good results, questioning the role of suction drain post TKA.⁴

Many investigators^{5,6,7,8}, studied about the duration for which a drain should be retained and recommended use of drain for not more than 24 hours. The presence of the drain may increase incidence of retrograde bacteri-

al migration to the wound site. The practical usage and evidence is different with majority of surgeons using drains for more than 24 hours. There is a belief wound complication would decrease with decreasing hematoma. The use of anticoagulants in postoperative period is forcing the surgeons to use of drains in arthroplasty. Review of literature suggests that bacterial inoculation with drain can cause increase of hospital stay and requirement of further surgical intervention, which is linked with use of drains.

Since surgeons are accustomed to using drains and fearful of the morbidity of deep infection it is understandable that there is resistance to a change of practice.^{9,10} However, no study has established an increased risk of deep infection associated with the use of a drain. We have been unable to provide evidence to support the use of a single closed-suction drain in cemented knee arthroplasty. Despite clamping the drain for the first four hours after TKA, we found that the patients with drainage showed more blood loss and gained no other benefit compared with those without a drain.

CONCLUSION

Many authors advocate use of suction drain following TKA but we did not find any added benefit. We are now not using suction drain in all routine TKA. This needs further study at more detailed level with further multicentric studies to prove this.

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