

A Comparison Study Between Blake Drains and Jackson- Pratt Drains in the Reduction of Incidence of Prolonged Seroma among Post Mastectomy Patients:
An Open Labelled, Single Blinded, Randomised Controlled Trial

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INTRODUCTION

Seroma formation is a prevalent complication following mastectomy, which can lead to significant discomfort and morbidity for patients.¹ One factor that has been explored in reducing this complication is the type of surgical drain used during the procedure.² Blake drain and Jackson-Pratt drain are two commonly utilised options, each with its own characteristics and potential impact on patient outcomes.³

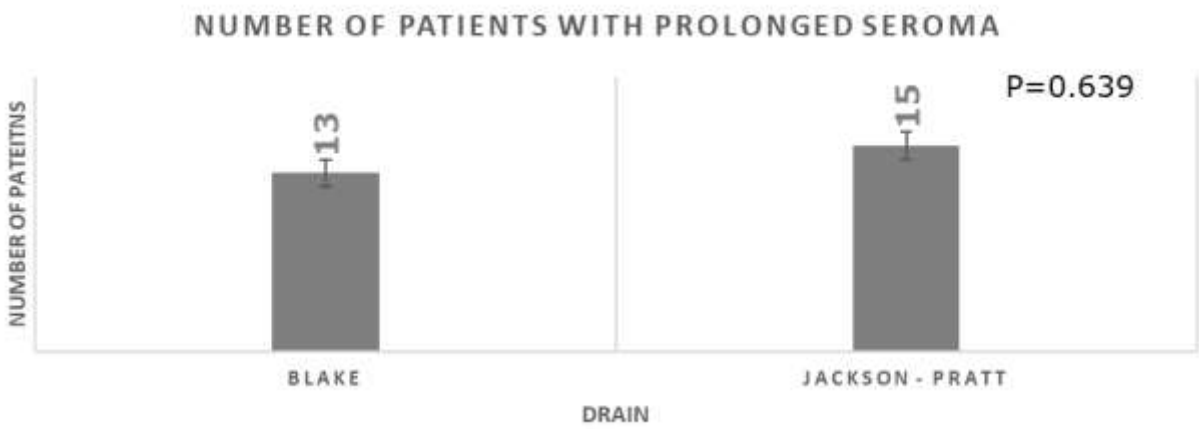


Figure 3: Bar chart showing number of patients with prolonged seroma

MATERIALS AND METHOD

- Single centre, randomised controlled trial.
- 80 patients undergoing modified radical mastectomy in University of Malaya Medical Centre (UMMC) were recruited.
- Between August 2022 to August 2023.
- The outcomes of interest were the incidence of prolonged seroma, pain scores related to drain placement, and the occurrence of wound complications.

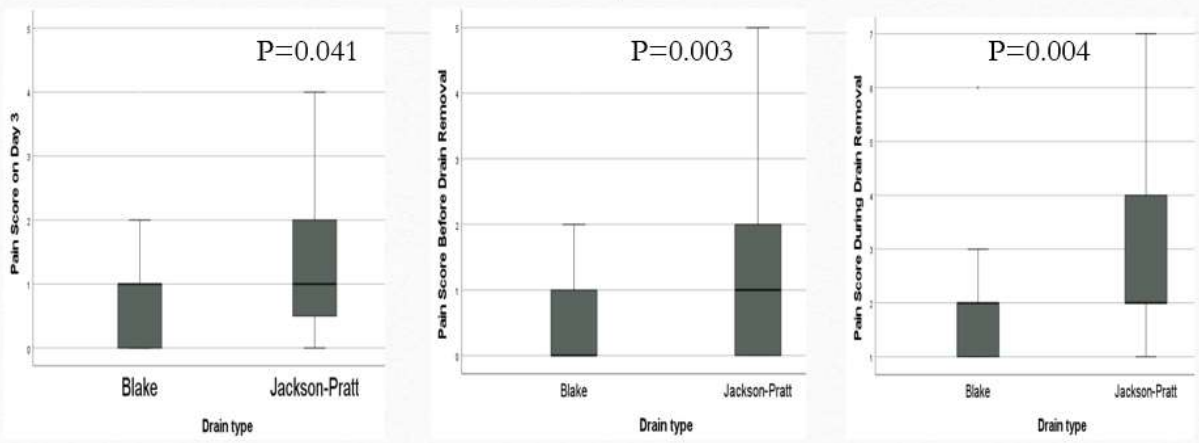


Figure 4: Boxplot showing pain score observed between the two groups of drains across three different time points

RESULTS

- 80 patients were randomised with 40 patients in the Blake drain group and 40 patients in the Jackson-Pratt drain group.
- There was no statistically significant difference in the incidence of prolonged seroma between the Blake drain group (32.5%) and the Jackson-Pratt drain group (37.5%), with a P-value of 0.639.
- Statistically significant difference is observed in pain scores between the two groups at three time points: on Day 3, before drain removal, and during drain removal. The Blake drain consistently resulted in lower pain scores compared to the Jackson-Pratt drain, with p-values of 0.041, 0.003, and 0.004, respectively.

DISCUSSION

- Both types of drains are similarly effective in preventing prolonged seroma formation. This aligns with previous research indicating that the overall incidence of seroma formation can be influenced by multiple factors, including surgical technique and patient characteristics, rather than the type of drain used alone.^{4,5}
- A noteworthy finding from our study is the significant difference in pain scores between the two groups which indicates a clear advantage of the Blake drain in terms of patient comfort.
- The design of the Blake drain, with its four continuous channels providing a larger tissue contact area and multiple drainage routes, may contribute to less tissue trauma and reduced pain during both the postoperative period and the removal process.⁶



Figure 1: Blake drain

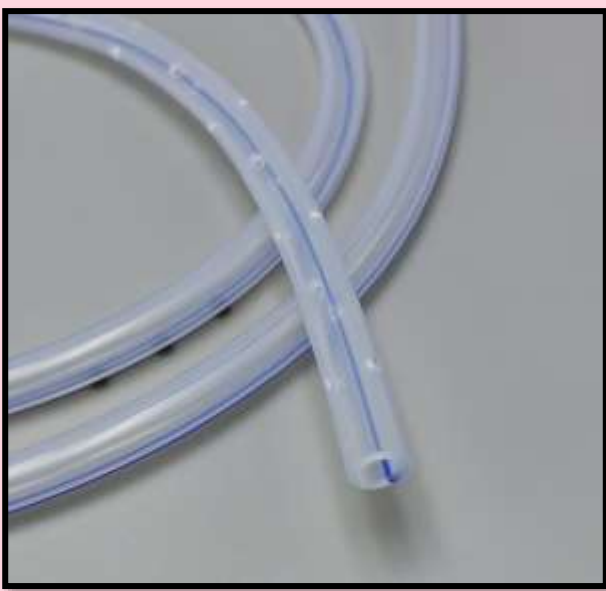


Figure 2: Jackson-Pratt drain

CONCLUSION

- To conclude, both drains are equally effective in preventing prolonged seroma post-mastectomy, but Blake drains significantly reduce pain scores, thereby enhancing patient comfort.
- This suggests that while clinical efficacy is crucial, patient comfort should also be a priority when selecting surgical drains, especially for those sensitive to pain or with chronic pain issues.

References:

- Kuroi, K., Shimozuma, K., Taguchi, T., Imai, H., Yamashiro, H., Ohsumi, S., & Saito, S. (2005). Pathophysiology of seroma in breast cancer. Breast Cancer, 12(4), 288-293.
- Thomson, D. R., Sadideen, H., & Furniss, D. (2013). Wound drainage after axillary dissection for carcinoma of the breast. Cochrane Database Syst Rev, 2013(10), CD006823.
- Porter, K. A., O'Connor, S., Rimm, E., & Lopez, M. (1998). Electrocautery as a factor in seroma formation following mastectomy. Am J Surg, 176(1), 8-11.
- Pogson, C. J., Adwani, A., & Ebbs, S. R. (2003). Seroma following breast cancer surgery. Eur J Surg Oncol, 29(9), 711-717
- Watt-Boolsen, S., Nielsen, V. B., Jensen, J., & Bak, S. (1989). Postmastectomy seroma. A study of the nature and origin of seroma after mastectomy. Dan Med Bull, 36(5), 487-489.
- Ravatt, S. S., Dancey, A. L., & Jaffe, W. (2005). Soft fluted silicone drains: a prospective, randomized, patient-controlled study. Plast Reconstr Surg, 115(6), 1605-1608.