

Outcomes and metalwork removal rates of surgically managed Lisfranc injuries at a trauma unit

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INTRODUCTION

Surgical fixation of Lisfranc injuries is often needed to restore stability to the midfoot. However, the optimal technique remains debatable. Dorsal bridge plating (DBP) has gained popularity as it preserves the joints. Yet, there is still uncertainty regarding the need for routine removal of metalwork.

Aims: To evaluate the short and long-term outcomes of Lisfranc injuries managed with DBP compared to ‘other fixation’ methods.

METHODS

Electronic patient records were used to analyse patients who underwent surgery for Lisfranc injuries between 2011 and 2024 at a large trauma unit. Minimum follow-up was one year. Patients were divided into two groups; DBP ± Lisfranc screw or tightrope ± Intercuneiform screw and ‘other fixation’ methods which violated the TMTJ’s (fusion, transarticular screws).

Outcome measures;

- Unplanned/planned metalwork removal rates
- Revision rates
- Long & short-term complications

RESULTS/DISCUSSION

Ninety-nine patients were identified, with an average age of 43. The average time to surgery was 14 days and all patients had at least one year follow-up.

Removal of metalwork	Bridge Plating	Other Fixation
Metalwork removed	79.7%	71.4%
Routine removal metalwork	57.8%	60.0%
Non-routine removal metalwork	21.9%	11.4%
Reason for non-routine removal		
➤ Symptomatic metalwork	92.9%	100.0%
➤ Lisfranc screw backed out	7.1%	0.0%

Table 1: Metalwork removal rates

The average metalwork removal rates were higher in the DBP group compared to the ‘other fixation’ group (79.7% vs 71.4%, Table 1). Similarly, the DBP group displayed higher rates of non-routine metalwork removal compared to the ‘other fixation’ group (21.9% vs 11.4% respectively). Symptomatic metalwork was the cause in all but one case.

From 2019 practice changed, DBP predominated and metalwork was no longer routinely removed. Therefore overall removal of metalwork rates dropped in the DBP group (100% reducing to and 25%, Graph1).

Non-routine removal of metalwork rates remained low at an average of 20.5% during this timeframe. This showed that return to theatre rates were low compared to available literature, with a 2022 Systematic review stating 62.5% unplanned metalwork removal rates¹

Short term complications occurred more frequently in the DBP group (37.5% vs 17.1%, Table 2). Higher rates of symptomatic metalwork (18.8% vs 8.6%) and dorsal paraesthesia (10.9% vs 2.9%) were observed in the DBP group. Yet, superficial infections were more common in the ‘other fixation’ group (5.7% vs 4.7%).

Long term complications occurred in similar proportion between DBP and ‘other fixation’ groups (29.7% vs 28.6% respectively). Symptomatic midfoot arthritis was most common, 14.1% vs 14.3% in DBP vs ‘other fixation’ groups respectively.

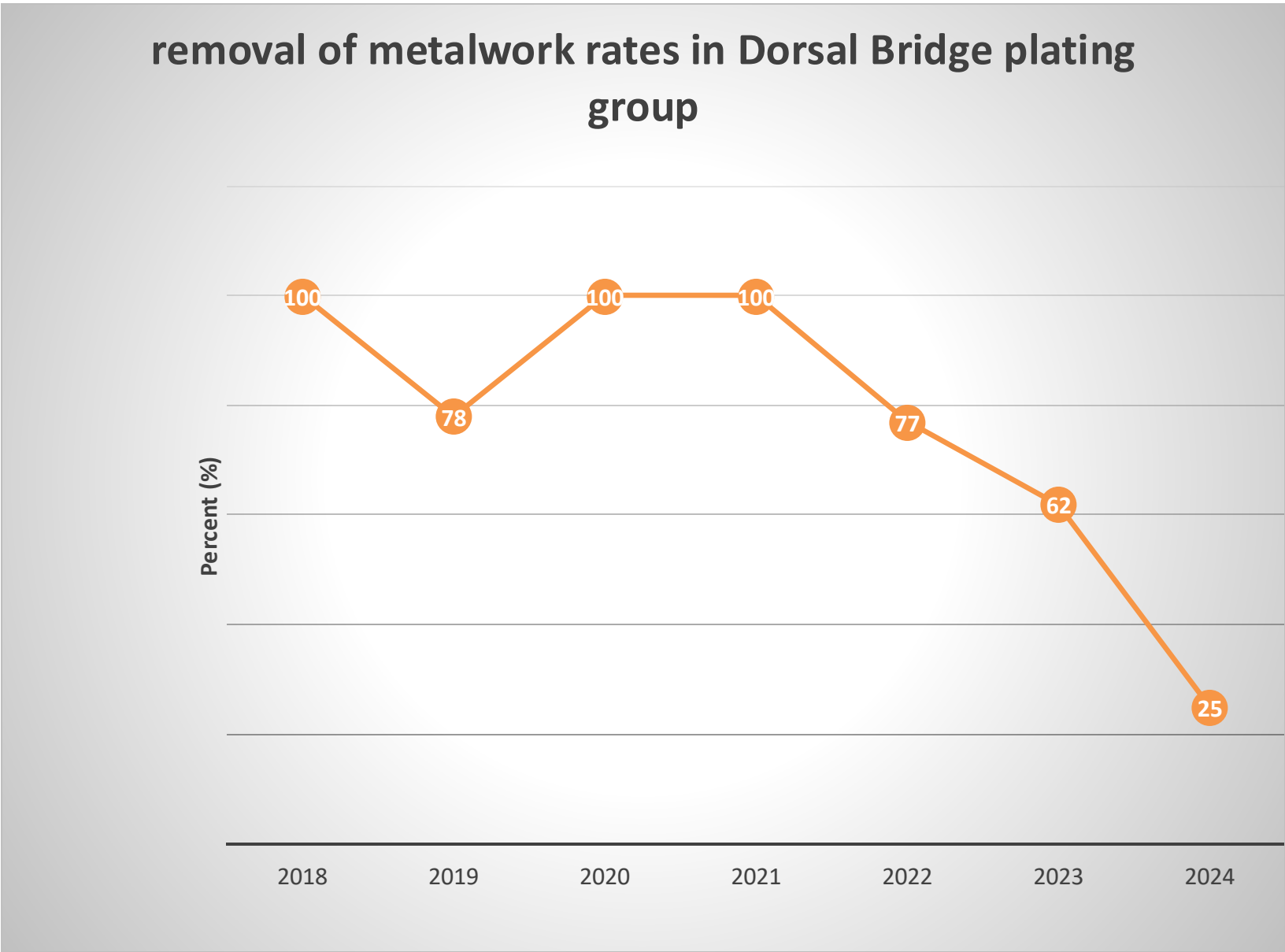


Chart 1: Metalwork removal rates in DBP group

The ‘other fixation’ group had higher rates of chronic midfoot pain (11.4% vs 4.7%) and non-union (2.9%).

Fixation method:	Bridge Plating		Other Fixation	
	n	%	N	%
Post op/short term complications	24	37.5%	6	17.1%
Long-term complications	19	29.7%	10	28.6%
Required injections	6	9.4%	1	2.9%
Revisions	1	1.8%	1	2.9%

Table 2: Complication rates

CONCLUSION

Lisfranc injuries managed with DBP had lower revision, infection and non-union rates compared to the ‘other fixation’ group. Metalwork removal rates were higher in the DBP group. However, from 2019 routine removal of metalwork reduced significantly, resulting in a low return to theatre rate in the DBP group compared to current literature. Long-term complication rates were similar, but short-term complications were more common in DBP group, with symptomatic metalwork and dorsal paraesthesia dominating.

REFERENCES

1. Rhodes AML, McMenemy L, Connell R, Elliot R, Marsland D. A Systematic Review of Outcomes Following Lisfranc Injury Fixation: Removal vs Retention of Metalwork. *Foot Ankle Orthop.* 2022;7(4):24730114221125447.