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Wound Complications Following Double Plating in Treatment of Bicondylar Tibial Plateau Fractures. A Comparison Between Single Midline Incision versus Two-Incision Technique

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Disclosure:

- Piero Innocenti, MD

I have no financial conflicts to disclose.

Introduction:

- Surgical fixation of bicondylar tibial plateau fractures is challenging because of the compromise of the soft tissue envelope. Double plate fixation of medial and lateral compartments is the gold standard because it prevents medial collapse and subsequent varus deformity. However this may require excessive dissection through injured soft tissue, leading to wound complications.

Objective:

- In patients with bicondylar tibial plateau fractures treated with double plate fixation, compare wound complication rates using a single midline incision vs. a two-incision technique

Materials and Methods:

Type of Study: Retrospective Cohort

Inclusion Criteria:
- Tibial Plateau Fracture Shatzker V and VI
- Double plate fixation

Exclusion Criteria:
- Open Fracture
- Compartment syndrome

Materials and Methods:

- 86 patients were included
- Patients were divided into two groups
  - Treatment by single midline incision or double incision
- Demographic data was analyzed, the time between accident an surgery, mean surgical time and complications (superficial infection, deep infection, skin necrosis and need of delayed wound closure)
- Data was analyzed with SPSS

Materials and Methods:

	Single midline incision	Double incision	P value
Age (years)	47.83	46.13	0.483
Gender	M: 38 W: 8	M: 33 W: 7	0.989
Time accident-surgery (days)	5.74	4.38	0.353
Mean surgical time (minutes)	155.35	130.15	0.023

Results:

	Single midline incision	Double incision	P value
Superficial infection	10.9%	2.5%	0.129
Deep infection	6.5%	0%	0.1
Skin necrosis	4.3%	2.5%	0.641
Delayed wound closure	4.3%	0%	0.182
TOTAL	26%	5%	0.008

Conclusion:

- In our series, patients with bicondylar tibial plateau fractures treated with double plate fixation, single midline incision had more wound complications compared with a two-incision technique.

Discussion:

- The midline incision has the advantage of providing full exposure of the fracture by lifting soft tissue flaps, however this led to high rate of wound complications as reported in previous studies. This may also be attributable to longer surgical times due to higher energy and complex fractures in comparison to the double incision group.
- Although double incision had significantly less wound complications, the ability to obtain accurate reduction of the articulate surface may be reduced.

Discussion:

- Our study has some limitations.
- We did not evaluate other outcomes like the quality of the reduction.
- Although all patients were classified as Schatzker V or VI, some of them had more complex patterns suggesting higher energy mechanisms than others. It was not possible to determine if there was a difference between the severity of fractures between the two groups that could affected the results.

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