

Proposal of the classification of midface fractures Based on anatomical buttresses.

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Introduction

The kinematics of midface injuries have changed over the last decades.¹ The distribution of fractures dependent on the location, direction and magnitude of force, as well as on the surface and consistency of the object; The facial bones have different tolerance levels, mainly due to their thickness, density and relation to air cavities, which causes a great variability in fracture lines.²

Materials and methods

The classification is based on 4 vertical lines (A, B, C, D) that coincide with the lateral and medial buttresses; three horizontal lines (X, Y, Z) that correspond to the upper, middle and lower buttresses. A corresponds to the right lateral buttress, B the right medial buttress, C the left medial buttress, D the left lateral buttress, X for the upper buttress, Y the middle buttress and Z the lower buttress.



Figure 1 horizontal and vertical buttresses

Classification

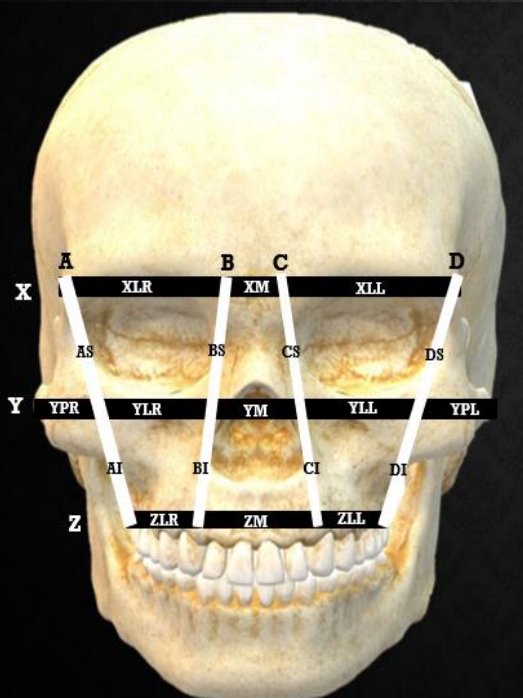


Figure 2 classification, lines and segments

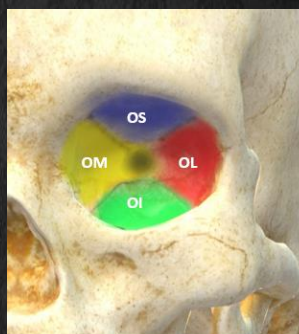


Figure 3 orbital classification

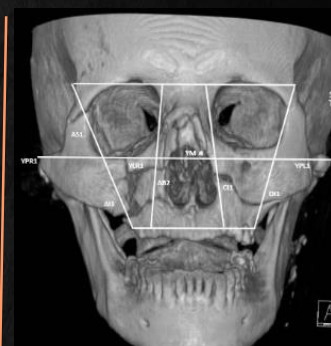


Figure 4 example of classification

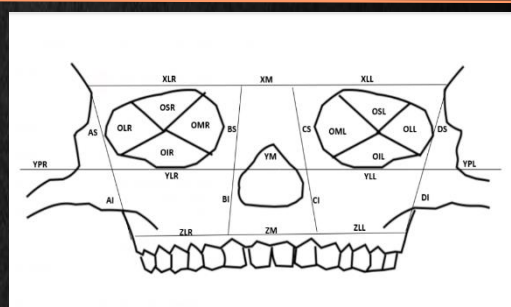


Figure 5 pictogram

Vertical components

| LINES | SEGMENTS | COMPONENTS |
|-------|---------------|---|
| A | Superior (AS) | Right zygomatic process of the frontal Frontal process of the right zygomatic bone |
| | Inferior (AI) | Process zygomatic of the right maxillary Right zygomatic body |
| B | Superior (BS) | Frontal process of the right maxilla Right maxillary process of the frontal |
| | Inferior (BI) | Alveolar region of the right canine Right piriformis opening |
| C | Superior (CS) | Left zygomatic process of the frontal Frontal process of the right zygomatic bone |
| | Inferior (CI) | Process zygomatic of the left maxillary Left zygomatic body |
| D | Superior (DS) | Frontal process of the left maxillary Left maxillary process of the frontal |
| | Inferior (DI) | Alveolar region of the left canine Left piriformis opening |

Horizontal components

| LINES | SEGMENTS | COMPONENTS |
|-------|-----------------------|---|
| X | Lateral right (XLR) | Right superior orbital rim |
| | Medial (XM) | Frontal nasal process and nasofrontal suture |
| | Lateral left (XLL) | Left superior orbital rim |
| Y | Posterior right (YPR) | Right zygomatic arch |
| | Lateral right (YLR) | Right inferior orbital rim |
| | Medial (YM) | Nasal bones |
| | Lateral left (YLL) | Left inferior orbital rim |
| Z | Posterior left (YPL) | Left zygomatic arch |
| | Lateral right (ZLR) | Alveolar region laterals to the right canine Palatine region lateral to the right canine |
| | Medial (ZM) | Alveolar region medial to the canine Palatine region medial to the canine |
| | Lateral left (ZLL) | Alveolar region laterals to the left canine Palatine region laterals to the left canine |

Discussion

Fractures of the middle third have been divided into anatomical subunits with multiple classifications and variations of each one.^{3,4} Multiple subunits can be seen involved in high-energy trauma, creating fracture lines that cannot be pigeonholed into them.

Conclusion

The classification uses alphabetic and numerical codes that facilitate statistical recording, create a sequence that guides the clinician in the diagnosis, simplifies the description in the medical record, and facilitates communication between maxillofacial surgeons.

Bibliography

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