

MORPHOLOGICAL FEATURES OF IMPACTED MAXILLARY CENTRAL INCISORS: A SYSTEMATIC REVIEW

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INTRODUCTION

Impacted maxillary central incisor (ICI) - a tooth retained in the maxillary arch beyond the date of eruption, surrounded by its pericoronal sac and has no contact with the oral cavity.

Etiological factors:

- ✓ Hereditary
- ✓ Supernumerary teeth
- ✓ Odontomas
- ✓ Trauma
- ✓ Dilacerations

Consequences:

- ✓ Facial aesthetics
- ✓ Function
- ✓ Speech
- ✓ Self-esteem



Different morphological characteristics (crown length, root length, and root dilacerations) compared to contralateral incisors (CCI).

METHODS



PubMed, ProQuest, Cochrane Library, Web of Science and Science Direct electronic databases.



MeSH terms "impacted maxillary central incisors" combined with "crown length", "root length", "root morphology", "root dilaceration".



Inclusion criteria:

- ✓ Randomized, prospective, and retrospective studies published in English;
- ✓ Patients diagnosed with unilateral impaction of maxillary central incisors;
- ✓ CBCT images with radiological evaluation measurements of ICI before treatment;
- ✓ Comparison between pre-treatment measurements of crown lengths, root lengths, root dilacerations (angle, position) of ICI and naturally erupted CCI.

CONCLUSIONS



The impacted maxillary central incisors' root lengths were considerably shorter compared to contralateral incisors.



Root dilaceration frequency and severity increased as dental age increased.

AIM



Morphology assessment of impacted maxillary central incisors.



Comparison with unimpacted contralateral incisors.

RESULTS

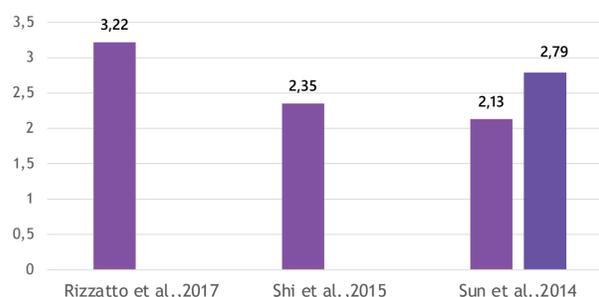


4 retrospective studies with 205 patients.



Root lengths of ICI significantly shorter compared to CCI from 2.13 mm to 3.22mm.

Root length difference (mm) between ICI and CCI



Root length - measured from cemento-enamel junction (CEJ) to the root apex.



Slight crown length reduction of impacted teeth was observed in comparison to their contralateral crowns.

Authors	Crown length (mm) measured from incisal edge to CEJ		Difference (mm)
	ICI	CCI	
Rizzato et al., 2017	10.02 (1.31)	10.58 (1.08)	- 0.56
Shi et al., 2015	dilacerated group 10.48 (0.38)	10.51 (0.23)	- 0.03
	non-dilacerated group 10.49 (0.42)		- 0.02
Sun et al., 2014	early dental age group 11.08 (1.02)	early dental age group 11.29 (0.86)	- 0.21
	late dental age group 10.90 (0.66)	late dental age group 11.05 (0.95)	-0.15



A significantly higher dilaceration angle was observed in early dental age group than in late dental age group by 32.75°.



Lyu et al. indicated the differences in dilaceration angle among nasal, labial, palatal impaction groups. The highest dilaceration angle was found in labially impacted incisors.



A link between the dilaceration incidence and patient age was observed: half of the early dental age group were presented with dilacerations while in the late dental age group it was twice as frequent - 95.5%.