

Patterns of Congenitally Missing Teeth (CMT) of Non-syndromic and Syndromic Patients

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Abstract

Objectives The aim of this study was to present an in-depth analysis of 843 patients with CMT treated at a single-center over the past thirty years.

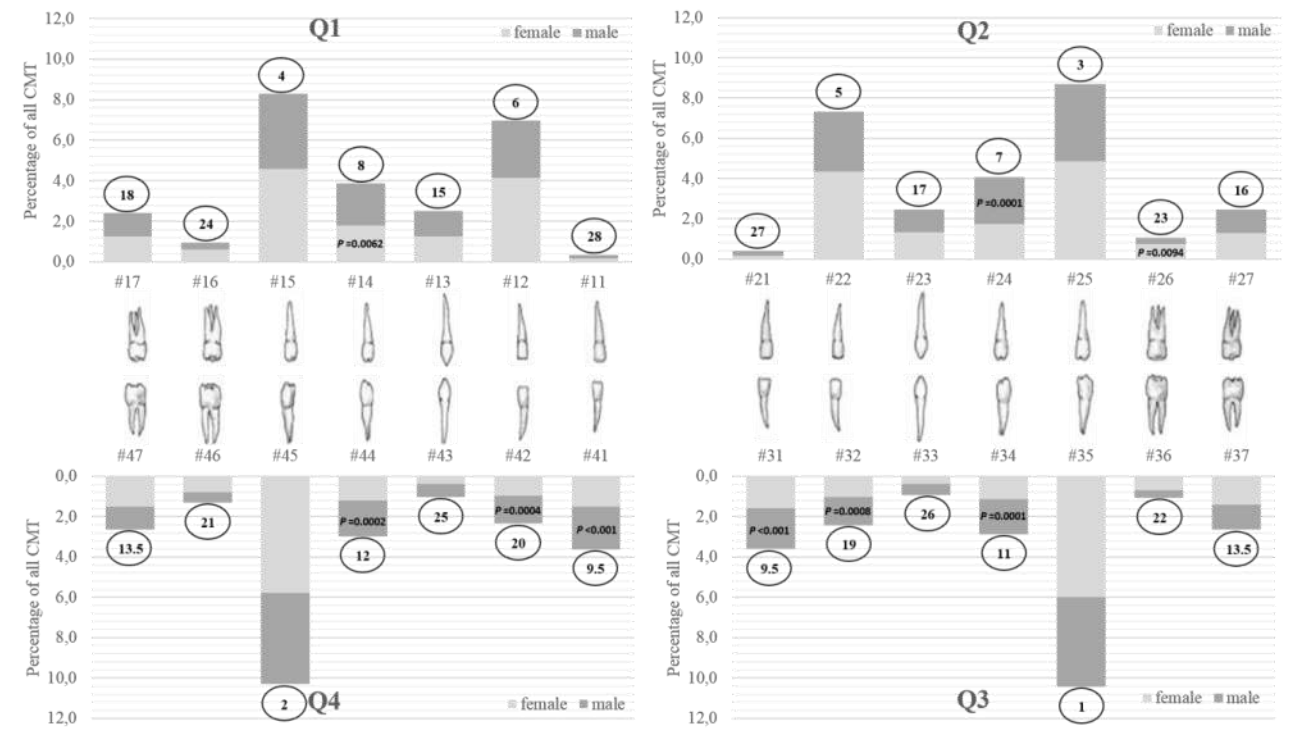
Design Age, date-of-birth-year, gender, medical- and family-history, CMT-types, -numbers, -severity, -region, -symmetry, -patterns using the tooth agenesis code (TAC), and -growth types of all clinically and radiographically diagnosed CMT-patients were collected. Age and occurrence of syndromes were used to divide CMT-patients into non-syndromic patients older than nine years (group1) and syndromic CMT-patients (group2). Groups were compared especially regarding gender and CMT-severity.

Results The average CMT-number per patient was 5.5 (group1, n=816, 59.9% female) and 15.1 (group2, n=27, 29.6% female). There were significantly less male (40.1% vs. 70.4%, respectively; P=0.002) as well as significantly less male oligodontia (44.8% vs. 73.9%, respectively; P=0.009) in group1 than in group2. Group1 resulted in decreased frequency of similar CMT-patterns with severity; the most frequent CMT was the 2nd premolar; there were no significant differences between the right and left side, whereas more CMT affected the maxilla; the majority of patients presented with bilateral-CMT (82.8%); females were more affected by CMT but more males had severer forms; certain single CMT differed by gender, and CMT was related to first-grade-relatives.

Conclusion The less severe the CMT-form, the more uniformity between gender regarding CMT-pattern was observed. Gender-specific association regarding CMT-number, severity groups and single CMT were found.

Results

Fig. 1 Percentage of numbers of CMT) by quadrant, tooth type, and gender (489 female; 327 male) of all 816 non-syndromic patients of group1. Numbers in circles represent the ranking of frequency. P-values (Bonferroni corrected; p<0.0125) are provided in cases of significant differences between female and male patients



Tab. 1: The five most frequent pattern of CMT group1 regarding severity groups presenting gender-differences.

	Extreme Oligodontia Frequency f/m	15-28 CMT f/m	Sever Oligodontia Frequency f/m	10-14 CMT f/m	Intense Oligodontia Frequency f/m (%)	6-9 CMT f/m	Moderate Hypodontia Frequency f/m	3-5 CMT f/m	Mild Hypodontia Frequency f/m	1-2 CMT f/m
1	1/1	n.a.*	2/2	15,13,12,22,23, 25,35,31,41,45 / 15,12,22,25,35, 32,31,41,42,45	7/6	15,12,22,25,35, 45 Identic	29/14	Identic	24/18	Identic
2	1/1	n.a.*	1/1	n.a.*	5/4	15,14,12,22,24, 25,35,45 / 15,25,35,34,44, 45	8/5	Identic	23/18	Identic
3	1/1	n.a.*	1/1	n.a.*	5/4	15,14,24,25,35, 45 Identic	8/4	15,35,45 / 15,24,25,35,45	10/8	Identic
4	1/1	n.a.*	1/1	n.a.*	3/4	15,14,24,25,35, 34,44,45 Identic	7/3	Identic	10/7	Identic
5	1/1	n.a.*	1/1	n.a.*	3/2	15,13,23,25,35, 45 / 15,14,12,22,24, 25,35,45	6/3	15,12,22,25	8/7	12 / 35

* Every possible pattern was present one single time and therefore it was not applicable (n.a.) to elucidate the most frequent pattern.

Background and Aim

Literature is lacking regarding a comprehensive investigation of CMT-patterns in a large general population presenting an in-depth analysis of severity groups and gender-dimorphism (Gkantidis et al. 2017). The main aim of the present study was to evaluate possible distinctions within a CMT-cohort especially regarding sex-dimorphism, occurrence, severity (hypodontia/oligodontia), and patterns of CMT of an large Austrian cohort, registered at the Competence Center for Patients with CMT (University Clinic of Dentistry of the Medical University, Vienna, Austria) over the past 30 years.

Conclusion

The less severe the CMT-form, the more uniformity between gender regarding CMT-pattern was observed. The most frequent pattern was CMT of the four 2nd premolars and the upper 2nd incisors. In group1 gender-specific associations regarding CMT-number, severity-subgroups, and single CMT were found whereas no Influences regarding the degree of relationship and family history were present. The premolars were predominant regarding CMT-affected tooth, bilateral-CMT, and CMT-region (anterior, middle, posterior).

Methods and Materials

Retrospective data analysis of 816 non-syndromic CMT-patients, >9 years of age (group1) and 27 syndromic CMT-patients (group2). **Outcome measures:** demographic data (age, gender, medical History,family history); CMT-severity group (hypodontia: mild 1-2 CMT, moderate 3-5 CMT; Acharya et al. 2010) and oligodontia: intense 6-9 CMT, severe 10-14 CMT, extreme 15-28 CMT), -region, -symmetry, -pattern (TAC tool = binary arithmetic; van Wijk & Tan 2006).

References

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