

# Supernumerary and congenitally missing primary teeth in Finnish children

## An epidemiologic study

SEPPO JÄRVINEN\* & LIISA LEHTINEN\*\*

\* Department of Dentistry, University of Kuopio

\*\* Department of Dentistry, Public Health Centre, Lahti, Finland

Järvinen, S. & Lehtinen, L. Supernumerary and congenitally missing primary teeth in Finnish children. An epidemiologic study. *Acta Odontol. Scand.* 1981, 39, 83 – 86

The prevalence of supernumerary and congenitally missing primary teeth was studied in a sample of 1141 children aged 3–4 years. The prevalence of supernumerary teeth was 0.4%; all the supernumerary teeth being located in the maxillary incisor area. The prevalence of congenitally missing teeth was 0.9%; seven of the missing teeth being maxillary and four mandibular lateral incisors. The differences in the prevalence of the anomalies between the sexes were not statistically significant. Of the fifteen children with a numerical variation of primary teeth, four developed similar anomalies in the permanent dentition.

*Key-words:* Pedodontics; hyperdontia; hypodontia

*Seppo Järvinen, Karjusaari, SF-15240 Lahti 24, Finland*

In the literature, only a small number of epidemiological reports on the occurrence of numerical variations in the primary dentition have been published (1, 2, 3, 4, 7, 8, 9, 11, 12); in many of these studies the frequencies of the anomalies in the primary and permanent dentitions have not been reported separately (1, 2, 4, 7, 8). The present study was undertaken to evaluate the prevalence of congenital dental anomalies, such as supernumerary and missing teeth, in the primary dentition of Finnish children.

### MATERIAL AND METHODS

The material used in the study consisted of 1141 children, 571 girls and 570 boys aged 3–4 years. The children were examined in the child welfare centres in the city of Lahti in Southern Finland. The prevalence of supernumerary and congenitally missing primary teeth was recorded by visual inspection. In cases with these anomalies, dental radiographs were taken during a further examination in a dental clinic. The possibilities of tooth loss through previous extractions or accidents were ex-

cluded with aid of the patient cards and interviews with the mothers.

The statistical analysis of the data was performed using the Fisher exact probability test.

### RESULTS

The prevalence of supernumerary primary teeth was 0.4 %; 0.2 % in girls and 0.7 % in boys. The difference between the sexes was not statistically significant. A total of five supernumerary teeth were recorded, three of them being maxillary lateral incisors and one a maxillary central incisor. In one case, a peg-shaped supernumerary tooth was fused with the regular maxillary lateral incisor. Three of the supernumerary teeth were located in the right and two in the left side of the mouth.

The prevalence of congenitally missing primary teeth was 0.9 %; 1.2 % in girls and 0.5 % in boys. The difference, however, was not statistically significant. Eleven missing teeth were recorded. Seven of them were maxillary and four mandibular lateral incisors. In one case the aplasia had occurred bilaterally. Six of the missing teeth were recorded in the right and five in the left side of the mouth.

The total number of children with numerical variation of primary teeth was 15 (1.3 %). In four of these cases anomalies were also found in the permanent dentition. According to the radiographic findings, in the case of the fused supernumerary tooth a similar joining of teeth was also seen in the permanent dentition, and in the three cases of missing primary maxillary lateral incisors the succedaneous permanent teeth were also absent; in one of the cases the aplasia occurred bilaterally. In one case of a missing mandibular lateral incisor it was not possible to study the condition, because the child

did not come for the radiographic examination.

### DISCUSSION

In the present study, the prevalence of supernumerary and congenitally missing primary teeth was recorded during a visual inspection, and only in cases with diagnosed numerical variations of teeth, were dental radiographs taken. This procedure precludes any methodological error in cases with missing teeth. On the other hand, the possibility of the occurrence of unerupted supernumerary teeth causes the risk of underestimating the frequency of supernumerary teeth. In the permanent dentition, unerupted supernumerary teeth occur frequently (5, 7, 8, 13), whereas in the primary dentition the hindered eruption of teeth is extremely uncommon. Luten (7) found eleven supernumerary primary teeth in his material, and all these teeth were erupted. Thus the risk of underestimating the prevalence of supernumerary primary teeth may be relatively slight, even though the examination was made only visually.

Congenital dental anomalies in the primary dentition seem to be relatively rare. In the present study, the prevalence was 0.4 % for supernumerary and 0.9 % for congenitally missing primary teeth. Grahnén & Granath (3) reported a prevalence of supernumerary teeth of about 0.3 % in children aged 3–5 years, and Ravn (12) a prevalence of 0.5 % in children aged 3 years. Luten (7) found six supernumerary primary teeth in 592 children aged 3–4 years, but the prevalence of children with supernumerary teeth was not reported. Ravn (12) found the prevalence of congenitally missing primary teeth to be 0.5 %, while McKibben & Brearley (8) did not find any cases with missing pri-

mary teeth. The lack of statistically significant differences between the sexes in the occurrence of anomalies in the present material is in agreement with the reports of previous investigators concerned with the frequency of congenital dental anomalies in primary and mixed dentitions (2, 5, 7, 8, 12).

The present finding – that all the supernumerary primary teeth were maxillary incisors – concurs with the reports of various authors. In Luten's investigation (7), the ratio between maxillary and mandibular primary supernumerary teeth was 10/1, and in that of Ravn (12) it was 15/1. All the supernumerary incisors found by McKibben & Brearley (8) were maxillary teeth. Stafne & Gibilisco (13) report the ratio between maxillary and mandibular supernumerary teeth to be about 8/1. A supernumerary tooth was fused with the normal upper primary lateral incisor in one of the cases reported in the present paper. Similar instances have been reported previously (7, 12). According to Stafne & Gibilisco (13), a supernumerary tooth is frequently one of the teeth involved in cases with joined teeth.

In four children congenital numerical variations were recorded both in the primary and permanent dentitions. In all of these cases the anomalies were of a similar nature and location in the two dentitions, one of them concerning a fused supernumerary tooth, and three involving missing maxillary lateral incisors. Grahnén & Granath (3) and Ravn (12) also found a clear relation between the two dentitions. From the present data and previous data on numerical variations in the permanent dentition (10), it seems reasonable to assume that the chance of developing such anomalies in the permanent dentition is five to six times greater for children with numerical variations in the primary dentition compared with chil-

dren with normal primary dentition. The occurrence of numerical variations of teeth in the same individual in both primary and permanent dentitions is thus relatively common, and this possibility should be noticed. Supernumerary and missing primary teeth, as well as joined primary teeth (12), should be seen as preliminary signs of the possible existence of numerical variations of permanent teeth. Children with such signs should be screened during the complete primary dentition stage in order to evaluate both their dental development and the possible need for orthodontic intervention in accordance with the preventive orthodontic programme of Järvinen (6).

#### REFERENCES

1. Byrd, E.D. Incidence of supernumerary and congenitally missing teeth. *J. Dent. Child.* 1943, 10, 84 – 86
2. Clayton, J.M. Congenital dental anomalies occurring in 3557 children. *J. Dent. Child.* 1956, 23, 206 – 208
3. Grahnén, H. & Granath, L.-E. Numerical variations in primary dentition and their correlation with the permanent dentition. *Odontol. Revy* 1961, 12, 348 – 357
4. Glenn, F.B. A consecutive six-year study of the prevalence of congenitally missing teeth in private pedodontic practice of two geographically separated areas. *J. Dent. Child.* 1964, 31, 264 – 270
5. Järvinen, S. Supernumerary and congenitally missing permanent upper anterior teeth in 7-year-old Finnish children. A radiographic study. *Proc. Finn. Dent. Soc.* 1976, 72, 99 – 102
6. Järvinen, S. Hampaiston oikomishoidon prioriteettien määrittämisestä. *Suom. Hammaslääk.-L.* 1976, 23, 949 – 954
7. Luten, J.R. The prevalence of supernumerary teeth in primary and mixed dentitions. *J. Dent. Child.* 1967, 34, 346 – 353
8. McKibben, D.R. & Brearley, L.J. Radiographic determination of the prevalence of selected dental anomalies in children. *J. Dent. Child.* 1971, 38, 390 – 398
9. Menczer, L.F. Anomalies in the primary dentition. *J. Dent. Child.* 1955, 22, 57 – 62
10. Pindborg, J.J. Pathology of the dental hard tissues. Munksgaard, Copenhagen 1970
11. Plaetschke, J. Okklusionanomalien im Milchgebiss. *Dtsch. Zahn-, Mund- Kieferheilk.* 1938, 5, 435 – 451

12. Ravn, J.J. Aplasia, supernumerary teeth and fused teeth in the primary dentition. An epidemiologic study. *Scand. J. Dent. Res.* 1971, 76, 1 - 6
13. Stafne, E. C. & Gibilisco, J. A. *Oral roentgenographic diagnosis*. 4th ed., Saunders, Philadelphia - London - Toronto 1975