

原文題目(出處)：	Dentin dysplasia type I-novel findings in deciduous and permanent teeth. BMC Oral Health 2015;15:163
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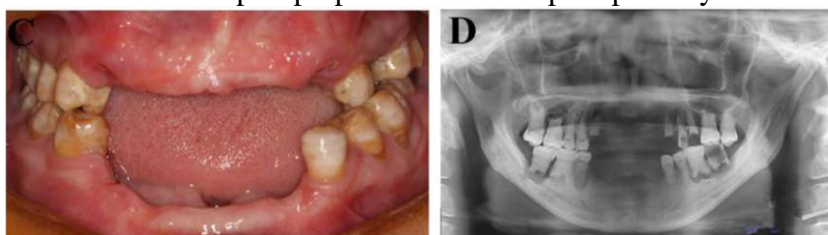
內文：

**Background**

1. DD-I is referred to as “radicular dentin dysplasia”
2. autosomal dominant genetic
3. first described by Ballschmiede but it was Rushton who termed the condition “dentinal dysplasia”
4. unknown etiology
5. 1/100,000
6. nearly normal appearing crowns, regular or slightly amber translucency, abnormal spaces
7. malposition and severe tooth mobility
8. spontaneous exfoliation
9. Radiographic examination is a paramount diagnostic tool for identifying this disease, short, blunt and malformed roots, similar to those observed in taurodontic teeth.
10. crescent-shaped pulp remnants parallel to the cementoenamel junction
11. several periapical radiolucencies in noncarious teeth
12. treatment : dietary analysis and advice, careful oral hygiene, fluoride supplements , conventional endodontic therapy retrograde root filling, and periapical curettage

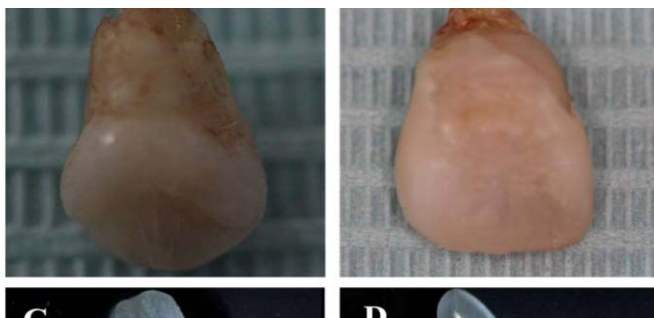
**Results**

1. maxillary and mandibular incisors were lost
2. severe mobility of the residual teeth; residual teeth with short roots, obliteration of pulp chambers with crescent- shaped pulp remnants and periapical cysts without

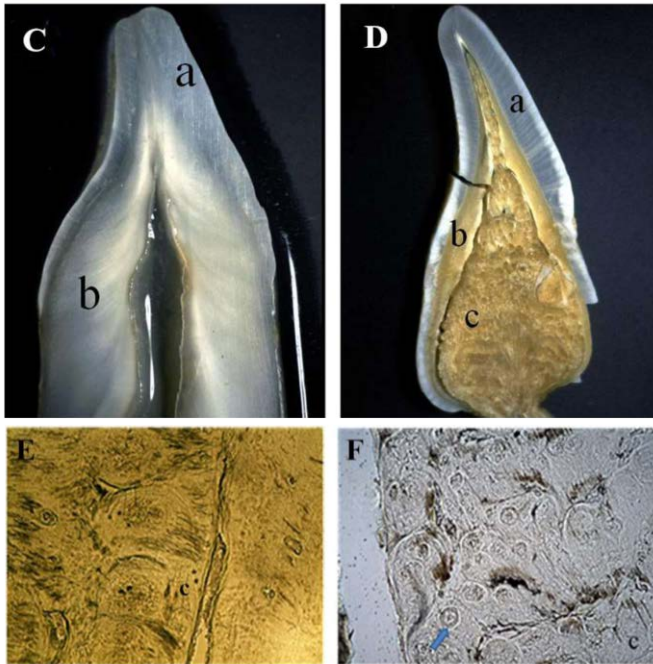


carious lesions

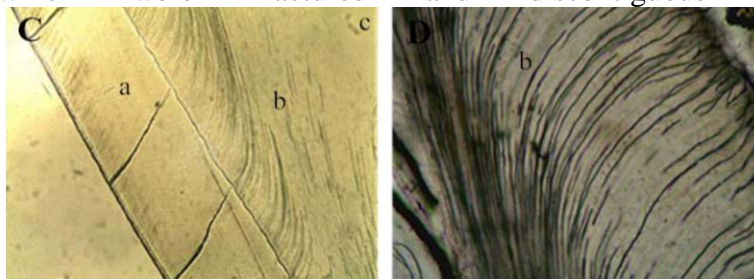
3. Extracted teeth of individuals affected by DD-I exhibited generalized normal shaped crowns but with a slightly yellow color with short roots, obliterated pulp chambers as well as defective enamel



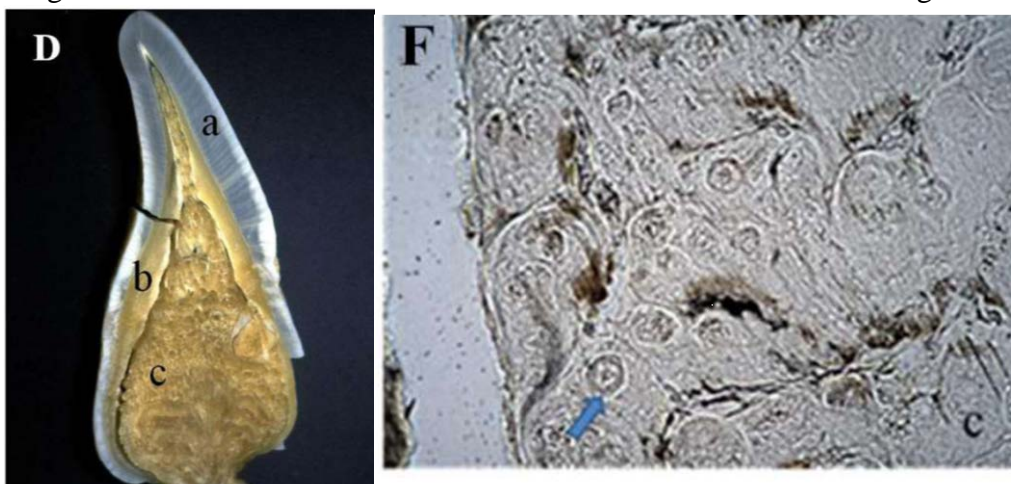
4. Examination of ground sections of DD-I and normal teeth under a stereomicroscope and LM revealed that the enamel was of normal thickness in both normal and DD-I teeth and a normal-appearing enamel was continuous with a normal-appearing coronal dentin band of tubules



5. dentinal tubules of circumpulpal dentin were fewer compared to the controls, which were fractured and discontinuous in certain areas



6. thickness of dentin was noticeably thinner in DD-I teeth compared to the controls; pulp chamber was extra-large and the entire region was fused with large masses of irregular organizations

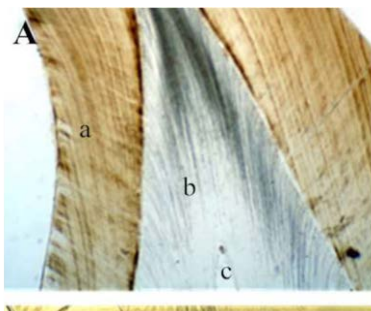


7. Analysis at a higher magnification revealed that the dysplastic dentin masses

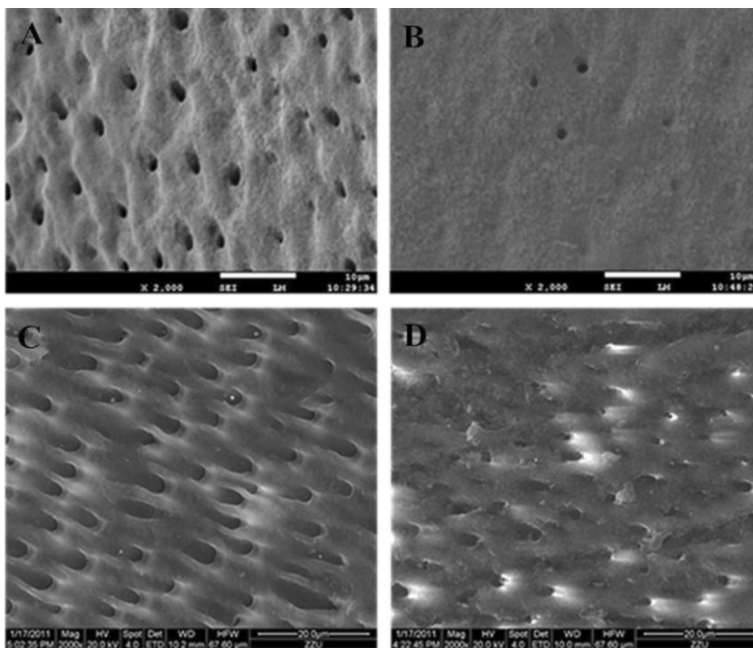
consisted of mineralized whorled dentin globules and dentin tubules with the two sections forming a characteristic “stream flowing around boulders” root dentin structure



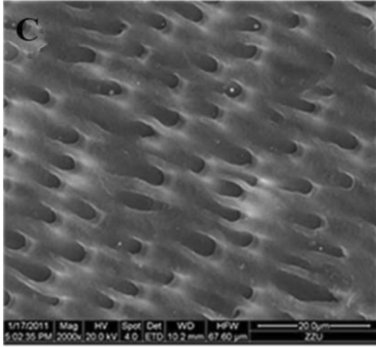
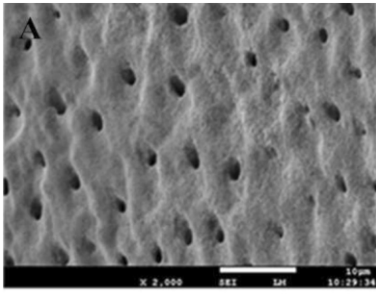
8. dentinoenamel junction was either smooth or scalloped, but the scalloped structure of DD-I was larger than that of controls. In addition, teardrop-shaped lacunae were found near the cervical enamel in DD-I teeth



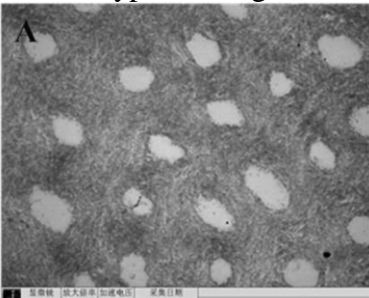
9. SEM of the enamel revealed that dentinal tubules of the controls were dense and homogeneous. However, dentinal tubules were fewer in number and smaller in diameter in DD-I teeth than in normal teeth, and some aperture of dentinal tubules of DD-I teeth were occluding



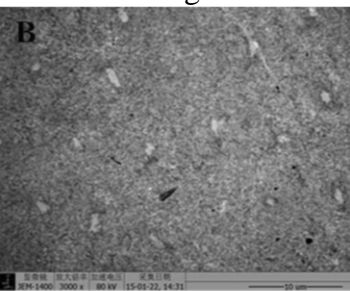
10. At higher magnifications, DD-I teeth contained regions of rodless enamel with black and white horizontal stripes
11. normal



12. laminar-type collagen could be found between the intertubular dentin

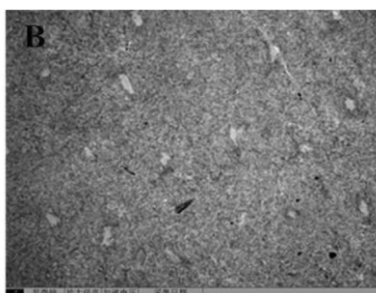


13. When seen, the dentinal tubules usually had a smaller diameter and a more irregular outline than the tubules found in the controls and the margin of the tubule wall was poorly demarcated. Intratubular content varied from a granular material to a dense amorphous mass that was present in most of the tubules, and with increasing abnormality, the tubules became sparse and small, and finally



vanished

14. In addition, the collagen fibers appeared short and intruded into the tubules, and areas with sparse collagen became more frequent. Finally, collagen fibers



were also haphazardly oriented in the dentin matrix

**Table 1** Summary of the main results

	Normal permanent teeth	DDI-permanent teeth	Normal deciduous teeth	DDI-deciduous teeth
Normal crowns	-	+	+	+
Rootless teeth		+		+
Periapical radiolucencies		+		+
Pulp obliteration		!		!
Partially obliterated crescent shaped pulp chamber		+		+
Normal enamel	-	+	+	+
Well-demarcated mantle dentin	-	+	+	+
Dysplastic dentinal tubules		+		+
"Stream flowing around boulders" root dentin structure		!		!
Chaotic collagen fibers		+		+
Larger scalloped dentinoenamel junctions		!		
Teardrop-shaped lacunae in the enamel		+		
Rodless enamel		+		

15. **Discussion**

1. DD-I is divided into four subtypes (a–d) based on the amount of obliteration of the pulp chambers, root development, and periapical radiolucent areas.

a. DD-Ia is characterized by complete obliteration of the pulp, no root development, and many periapical radiolucent areas.

b. In DD-Ib, a single small horizontally oriented and crescent shaped pulp is present, roots are only a few millimeters in length and there are frequent periapical radiolucencies.

c. DD-Ic is characterized by the presence of two horizontal or vertical crescent shaped pulpal remnants which surround a central island of dentine. In addition, teeth have shortened root lengths and variable periapical radiolucencies.

d. DD-Id, the pulp chambers are distinct, with pulp stones in the coronal third of the root canal (with corresponding bulging of the root).

不同處(重複)

- (1) The thickness of dentin was thinner compared to the controls;
- (2) The dentinoenamel junction (DEJ) was either smooth or scalloped, but the scalloped structure found in DD-I teeth was larger than controls;
- (3) teardrop-shaped lacunae were found near the cervical enamel;
- (4) regions of rodless enamel with black and white horizontal stripes could be found in DD-I teeth and
- (5) the collagen fibers were irregular.

2. In some pathological areas we could not find dentinal tubules and this could be explained by degradation and dysfunction of odontoblasts

3. We hypothesize that dentinal tubules are important in dentinogenesis and they may act as pathways of transport for matrix gel protein and subsequent reabsorption of the gel and transport of calcium phosphates during dentin mineralization.

4. The negative effects on the mineralization of peritubular dentin and intertubular dentin found in this study could therefore have resulted from decreased tubules
5. The results of thinner dentin and the structure of “stream flowing around boulders” may be explained as follows: An initial normal function of the odontoblasts or preodontoblasts can be seen by a well-demarcated mantle dentin layer [26], but if odontoblasts become dysfunctional this results in a quick, chaotic matrix deposition and mineralization, finally leading to pulp obliteration 同時 odontoblast-like cells 也會分泌物質造成根管鈣化阻塞
6. configuration of the DEJ was scalloping 是為了有更多的鍵結力
7. teardrop-shaped lacuna near the cervical enamel corresponded to regions of rodless enamel
8. The exact mechanism responsible for DD-I is an enigma

**Conclusions**

(1) thinner dentin; (2) larger scalloped dentinoenamel junctions; (3) teardrop- shaped lacunae in the enamel; (4) rodless enamel and (5) irregular collagen fibers

題號	題目
1	下列何者不為 DD-I 的特色 (A) thinner dentin (B) larger scalloped dentinoenamel junctions (C) teardrop- shaped lacunae in the enamel (D) regular collagen fibers
答案 (D)	出處：oral and maxillofacial pathology, third edition
題號	題目
2	teardrop-shaped lacunae 出現在 (A) enamel (B) dentin (C) CEJ (D) DEJ
答案 (D)	出處：oral and maxillofacial pathology, third edition