標題	Oral manifestations as an early clinical sign of acute myeloid leukaemia: a case report
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內文：

Abstract：

1. Leukaemia is the most common malignancy in children and one of the most common malignancies in young adults. Acute myeloid leukaemia is often associated with early oral manifestations.
2. The purpose of this study is to report the case of a 49-year-old male with spontaneous gingival bleeding for over two years with undiagnosed leukaemia.
3. Since oral lesions can be one of the early events of acute myeloid leukaemia, they may be considered as an important diagnostic indicator for oral health practitioners, and their roles in diagnosing and treating such patients.

Introduction：

1. Oral manifestations are often potential indicators of systemic diseases, so recognizing them can lead the way to a prompt diagnosis and management.
2. Leukaemia is a malignancy of haematopoietic cells characterized by the proliferation of malignant leucocytes and destruction of the bone marrow.
3. General manifestation of leukaemia may include fatigue, anaemia, lymphadenopathy, recurrent infection, bone and abdominal pain, bleeding and purpura.
4. Oral manifestations of leukaemia may include petechial haemorrhages of the tongue, lips, posterior hard and soft palate, gingival hyperplasia and spontaneous gingival bleeding, and ulcerations
5. Patient may also suffer from severe viral, bacterial and fungal infections as a consequence of pancytopenia.
6. The relationship between leukaemia and a wide variety of oral lesions has been well documented in many studies.

Case report:

1. In September 2013, a 49-year-old male was referred and wanted to evaluate and treatment of persistent bleeding gingivae palatal to his maxillary central incisors that the patient had first noticed two years previously. He had not been concerned until the previous evening when the bleeding would not stop.
2. He had a history of exertional breathlessness, which had worsened over several weeks. The gingivae were painless and showed no abnormal swelling during this period.
3. Past medical history:
   (1) No history of facial trauma.
   (2) He had chronic muscular skeletal back and neck pain, congenital glaucoma with bilateral goniotomies and right buphthalmos.
   (3) He was taking clindamycin due to tonsillitis.
   (4) Allergic to penicillin.
   (5) No family history of any bleeding disorders
4. No smoke and rarely drank alcohol.
5. Extraoral examination:
   (1) No regional lymphadenopathy or salivary gland swelling
   (2) The patient appeared very fatigued, weak and pale.
   (3) Spoon-shaped fingernails (koilonychia) were noted.(fig.1)

6. Intraoral examination:
   (1) It revealed buccal mucosal pallor(fig.2) and severe gingival haemorrhagearound without any touching or probing at the tooth 11 and 21 palatal gingival margin.
   (2) Tooth 11 and 21 were positive to sensibility testing.
   (3) Periodontal pocket depths were less than 3 mm.
   (4) No dental plaque or calculus deposits were detected clinically.

Fig. 1 Spoon-shaped fingernails (koilonychia).

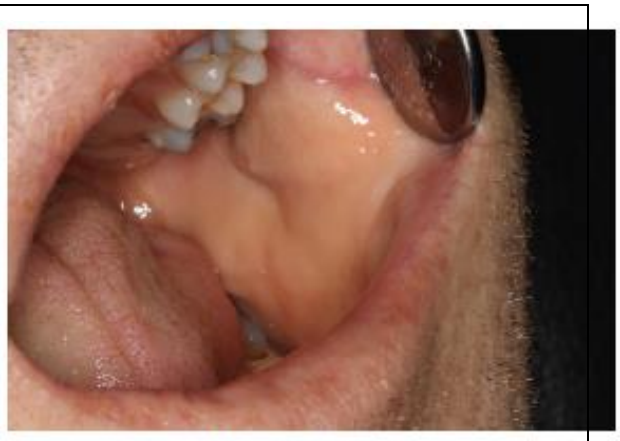

Fig. 2 Mucosal pallor.

7. X-ray finding:

   Panoramic and periapical radiographs showed no abnormal dental or osseous finding.

8. Lab test:

Table 1. Complete blood count 18–24 September 2013

	18th	20th	21st	22nd	23rd	24th	Normal value range
Haemoglobin	63	90	81	74	98	85	130–175 g/L
HCT	0.19	0.27	0.24	0.22	0.29	0.25	0.4–0.52
MCV	103	96	97	96	94	93	80–99 fL
MCH	34.8	32.6	32.5	33	31.3	32.1	27–33 pg
Platelets	23	21	53	35	31	21	150–400 $*10^9$ /L
WBC	0.5	0.5	0.7	0.3	0.4	0.2	4–11 $*10^9$ /L
Neutrophils	0.0	0.0	0.0	0.0	0.1	0.0	1.9–7.5 $*10^9$ /L
Lymphocytes	0.4	0.4	0.6	0.2	0.3	0.2	1–4 $*10^9$ /L
Monocytes	0.1	0.1	0.1	0.0	0.0	0.0	0.2–1.0 $*10^9$ /L
Eosinophils	0.0	0.0	0.0	0.0	0.0	0.0	<0.6 $*10^9$ /L
Basophils	0.0	0.0	0.0	0.0	0.0	0.0	<0.3 $*10^9$ /L

Table 2. Biochemistry, liver function tests, C-reactive protein, urea and creatinine 18–24 September 2013

	18th	20th	21st	22nd	23rd	24th	Normal value range
Na	141	140	138	138	133	131	135–145 mmol
K	4.9	4	4	3.9	4.3	4.1	3.5–5.2 mmol
Urea	6.5	4.0	3.5	3.6	4.7	4.6	3.2–7.7 mmol
Creatinine	74	64	60	60	62	60	50–110 µmol
Albumin	38	35				29	35–50 g/L
Total protein	74	65				60	64–83 g/L
Total bilirubin	13	7				9	2–20 µmol/L
Alk phosphatase	86	85				71	30–150 U/L
ALT	19	15				10	0–40 U/L
GGT	13	12				19	10–50 U/L
CRP	95	94	97	131	143	162	<5 mg/L

Table 3. Blood clotting test 18–24 September 2013

	18th	20th	21st	22nd	23rd	24th	Normal value range
Prothrombin time	13.8	13.3				14.4	9.0–14.0 seconds
INR	1.2	1.1				1.3	0.8–1.2 seconds
APTT	35	31				34	22–34 seconds
Fibrinogen	6.7	6.3				6.0	1.8–4.0 g/L

9. Treatment:

   (1) Tranexamic acid 5% mouthwash to arrest the bleeding.

   (2) Received standard dose daunorubicin/cytarabine induction chemotherapy.

   (3) Had been given consolidation therapy with a more intensive chemotherapy regimen known as FLAG/ Idarubicin.

   (4) As his AML was unlikely to be cured with chemotherapy alone, an allogeneic stem cell transplant was planned.

Discussion:

1. AML is an aggressive myeloid neoplasm that results from clonal transformation of haematopoietic precursors through the acquisition of chromosomal rearrangements and multiple gene mutations.
2. AML is a relatively uncommon disease, accounting for approximately 25% of all leukaemias in adults in the western world.
3. AML is an aggressive disease that predominantly occurs in older adults, with a median age at diagnosis of over 65 years. AML is rarely diagnosed before the age of 40 years
4. The incidence of AML varies with gender and ethnicity.
5. Clinical presentation
   (1) Most of these clinical signs and symptoms are related to the reduction of leucocytes and erythrocytes
   (2) Splenomegaly, hepatomegaly and lymphadenopathy.
   (3) Neutropenia, thrombocytopenia and anaemia.
   (4) Fever, fatigue, pallor, bleeding and purpura, bone and abdominal pain and recurrent infections.
6. Oral manifestations
   (1) Mucosal pallor
   (2) Spontaneous bleeding and petechial haemorrhages of gingivae, palate, tongue or lip
   (3) Gingival hyperplasia.
   (4) Laryngeal pain and oral ulcerations
   (5) Patients may also have severe recurrent viral, bacterial and fungal oral infection, such as diffused chronic mucocutaneous candidiasis, recurrent herpetic gingivostomatitis and bacterial infection
   (6) Pre-existing periodontal disease can exaggerate the leukaemic infiltration and worsen the gingival enlargement.

7. Relative disease

Table 4. Risk factors associated with AML

Genetics	Down syndrome
	Klinefelter syndrome
	Bloom syndrome
	Patau syndrome
	Ataxia telangiectasia
	Diamond-Blackfan syndrome
	Shwachman syndrome
	Kostman syndrome
	Neurofibromatosis I
	Fanconi anaemia
	Li-Fraumeni syndrome
Chemical exposure	Benzene
	Drugs such as pipobroman
	Pesticides
	Cigarette smoking
	Embalming fluids
	Herbicides
Radiation	Radiation exposure (Non-therapeutic or therapeutic radiation)
Chemotherapy	Alkylating agents
	Topoisomerase-II inhibitors
	Anthracyclines
	Taxanes
Preleukaemia	Myelodysplastic syndrome
	Myeloproliferative disease

conclusion：

Oral lesions are one of the initial manifestations of acute myeloid leukaemia. This case emphasizes that oral health practitioners should be familiar with the systemic manifestations and oral complications of blood diseases and leukaemia.

1	Which of the following disease is the risk factor associated with AML?
	(A) Down syndrome
	(B) Lichen planus
	(C) Myxoma
	(D) Bechet's disease
答 (A)	出處：*oral and maxillofacial pathology, third edition, P587*
2	Which of the following is not the clinical feature of leukemia?
	(A) Oral ulceration
	(B) Gingiva bleeding
	(C) Fever
	(D) Hyperactivity
答 (D)	出處：*oral and maxillofacial pathology, third edition, P587~588*