

## Supplementary

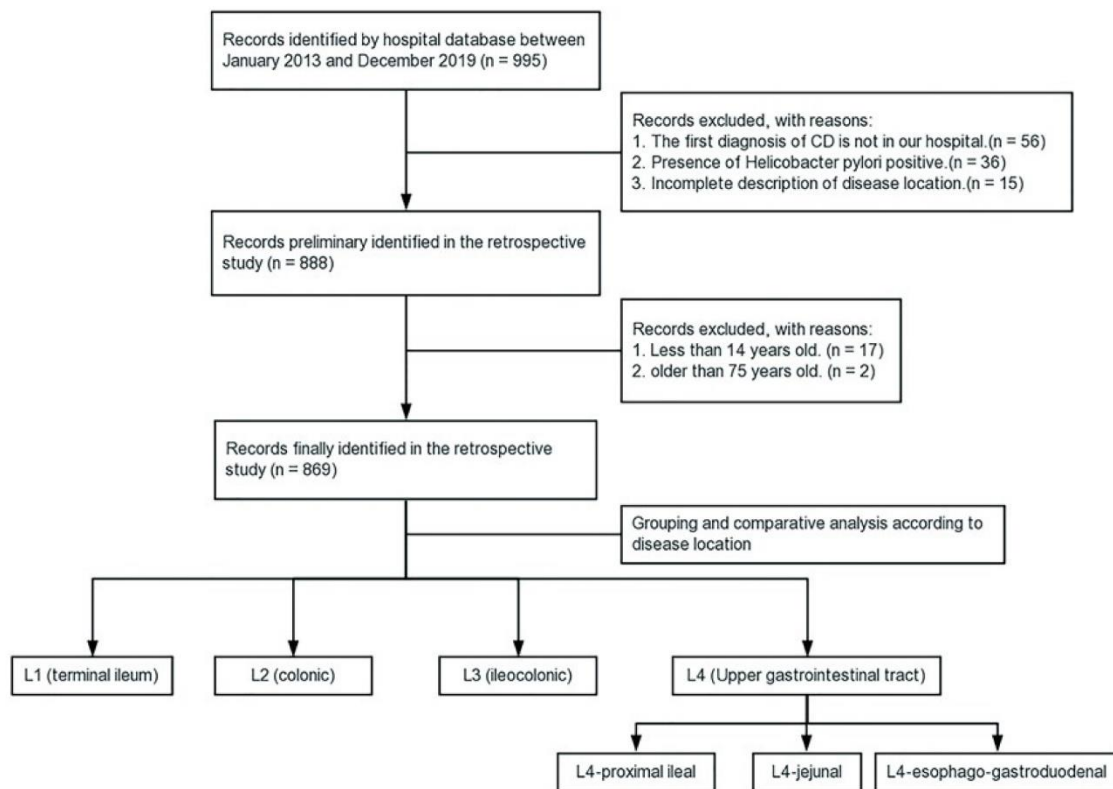


Figure S1 Flow chart of the study.

There are 25 supplementary tables.

- ✧ Table S1 to Table S6: the comparison of basic situation, disease characteristics and complications between L4 subgroups and non-L4 patients.
  - ✧ Table S7 to Table S10: the comparison of 14 food intolerance between L4 subgroups and non-L4 patients.
  - ✧ Table S11 to Table S17: the comparison of BMI between L4 patients and non-L4 patients.  
Note: Due to the lack of height data for patients from 2013 to 2016. For body mass index, we used the data of patients diagnosed as CD in our hospital from 2017 to 2019.
  - ✧ Table S18 to Table S24: the comparison of calcium, magnesium, folate, vitamin B12, ferritin, iron and vitamin D between L4 patients and non-L4 patients.  
Note: All CD patients had data of calcium and magnesium; 480 patients had data of folate, 476 patients had data of vitamin B12, 482 patients had data of ferritin, 443 patients had data of iron, and 143 patients had data of vitamin D.
  - ✧ Table S25: using BMI to adjust weight, we found that BMI, disease course, stricturing behavior and tomato intolerance were the independent relevant factors of the L4 phenotype.
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**Table S1** Comparison of basic situation, disease characteristics and complications between L4-proximal ileal and non-L4 patients

Clinical variable	L4-proximal ileal	Non-L4 patients	Odds ratio	
	N=335 (%)	N=350 (%)	(95% CI)	P value
Male	276 (82.39)	237 (67.71)	2.23 (1.55–3.19)	0.000**
Body weight (kg)	55.00 (13.00)	50.00 (12.00)		0.000**
Albumin (g/L)	34.91 (7.46)	32.94 (7.40)		0.001**
Age at onset (year)	32.10 (11.76)	31.04 (13.10)		0.267
Disease course (month)	12.00 (43.00)	9.50 (22.00)		0.001**
Smoker	93 (27.76)	60 (17.14)	1.85 (1.28–2.68)	0.001**
Disease behavior				
B1 (non-structuring-nonpenetrating)	117 (34.93)	186 (53.14)	0.47 (0.34–0.64)	0.000**
B2 (stricturing)	165 (49.25)	120 (34.29)	1.86 (1.36–2.53)	0.000**
B3 (penetrating)	23 (6.87)	21 (6.00)	1.15 (0.62–2.12)	0.756
B2 and B3	30 (8.96)	23 (6.57)	1.39 (0.78–2.46)	0.243
Perianal lesions	98 (29.25)	123 (35.14)	0.76 (0.55–1.05)	0.099
Disease active state (CDAI $\geq$ 150)	276 (82.39)	303 (86.57)	0.72 (0.47–1.10)	0.130
Other complications				
Joint pain	0 (0.00)	12 (3.43)		0.001**
Fever	30 (8.96)	55 (15.71)	0.52 (0.32–0.84)	0.007**
Mouth ulcer	4 (1.19)	14 (4.00)	0.29 (0.09–0.89)	0.022*
Abdominal mass	13 (3.88)	14 (4.00)	0.96 (0.44–2.09)	0.936
Abdominal surgery for CD	93 (27.35)	87 (24.86)	1.16 (0.82–1.63)	0.388

Body weight and disease course were showed as median (IQR). \*, P value is less than 0.05, with statistical difference; \*\*, P value is less than 0.01, with significant statistical difference. Albumin and age at onset were showed as mean (SD). CD, Crohn's disease; SD, standard deviation; g/L, gram per liter.

**Table S2** Comparison of basic situation, disease characteristics and complications between L4-proximal ileal and L4-jejunal

Clinical variable	L4-proximal ileal	L4-jejunal	Odds ratio	
	N=335 (%)	N=158 (%)	(95% CI)	P value
Male	276 (82.39)	125 (79.11)	1.23 (0.76–1.98)	0.384
Body weight (kg)	55.00 (13.00)	52.00 (15.00)		0.035*
Albumin (g/L)	34.91 (7.46)	33.82 (6.95)		0.123
Age at onset (year)	32.10 (11.76)	31.91 (11.30)		0.865
Disease course (month)	12.00 (43.00)	12.00 (30.00)		0.803
Smoker	93 (27.76)	41 (25.95)	1.09 (0.71–1.68)	0.673
Disease behavior				
B1 (non-structuring-nonpenetrating)	117 (34.93)	52 (32.91)	1.09 (0.73–1.63)	0.660
B2 (stricturing)	165 (49.25)	82 (51.90)	0.90 (0.61–1.31)	0.584
B3 (penetrating)	23 (6.87)	5 (3.16)	2.25 (0.84–6.04)	0.098
B2 and B3	30 (8.96)	19 (12.03)	0.72 (0.39–1.32)	0.288
Perianal lesions	98 (29.25)	31 (19.62)	1.69 (1.07–2.67)	0.023*
Disease active state (CDAI $\geq$ 150)	276 (82.39)	127 (80.38)	1.14 (0.70–1.85)	0.590
Other complications	45 (13.43)	17 (10.76)	1.28 (0.71–2.32)	0.403
Joint pain	0 (0.00)	2 (1.27)		0.102
Fever	30 (8.96)	9 (5.70)	1.62 (0.75–3.51)	0.211
Mouth ulcer	4 (1.19)	1 (0.63)	1.89 (0.21–17.11)	1.000
Abdominal mass	13 (3.88)	6 (3.80)	1.02 (0.38–2.74)	0.964
Abdominal surgery for CD	93 (27.35)	44 (27.85)	0.99 (0.65–1.51)	0.984

Body weight and disease course were showed as median (IQR). Albumin and age at onset were showed as mean (SD). \*, P value is less than 0.05, with statistical difference. CD, Crohn's disease; SD, standard deviation; g/L, gram per liter.

**Table S3** Comparison of basic situation, disease characteristics and complications between L4-proximal ileal and L4-EGD

Clinical variable	L4-proximal ileal	L4-EGD	Odds ratio	
	N=335 (%)	N=26 (%)	(95% CI)	P value
Male	276 (82.39)	21 (80.77)	1.11 (0.40–3.07)	0.835
Body weight (kg)	55.00 (13.00)	53.25 (16.62)		0.473
Albumin (g/L)	34.91 (7.46)	33.94 (6.89)		0.522
Age at onset (year)	32.10 (11.76)	33.46 (12.81)		0.573
Disease course (month)	12.00 (43.00)	10.00 (69.00)		0.675
Smoker	93 (27.76)	7 (26.92)	1.04 (0.42–2.56)	0.927
Disease behavior				
B1 (non-structuring-nonpenetrating)	117 (34.93)	14 (53.85)	0.46 (0.20–1.02)	0.053
B2 (stricturing)	165 (49.25)	10 (38.46)	1.55 (0.68–3.52)	0.289
B3 (penetrating)	23 (6.87)	1 (3.85)	1.84 (0.23–14.21)	0.552
B2 and B3	30 (8.96)	1 (3.85)	2.45 (0.32–18.79)	0.370
Perianal lesions	98 (29.25)	4 (15.38)	2.27 (0.76–6.77)	0.130
Disease active state (CDAI $\geq$ 150)	276 (82.39)	21 (80.77)	1.11 (0.40–3.07)	0.835
Other complications	45 (13.43)	6 (23.08)	0.51 (0.19–1.35)	0.174
Joint pain	0 (0.00)	1 (3.85)		0.072
Fever	30 (8.96)	2 (7.69)	1.18 (0.26–5.24)	1.000
Mouth ulcer	4 (1.19)	3 (11.54)	0.09 (0.02–0.43)	0.010*
Abdominal mass	13 (3.88)	0 (0.00)		0.611
Abdominal surgery for CD	93 (27.35)	2 (7.69)	4.61 (1.06–19.9)	0.025*

Body weight and disease course were showed as median (IQR). Albumin and age at onset were showed as mean (SD). \*, P value is less than 0.05, with statistical difference. CD, Crohn's disease; EGD, esophago-gastroduodenal; SD, standard deviation; g/L, gram per liter.

**Table S4** Comparison of basic situation, disease characteristics and complications between L4-jejunal and non-L4 patients

Clinical variable	L4-jejunal	Non-L4 patients	Odds ratio	
	N=158 (%)	N=350 (%)	(95% CI)	P value
Male	125 (79.11)	237 (67.71)	1.80 (1.58–2.81)	0.009**
Body weight (kg)	52.00 (15.00)	50.00 (12.00)		0.086
Albumin (g/L)	33.82 (6.95)	32.94 (7.40)		0.207
Age at onset (year)	31.91 (11.30)	31.04 (13.10)		0.447
Disease course (month)	12.00 (30.00)	9.50 (22.00)		0.002**
Smoker	41 (25.95)	60 (17.14)	1.69 (1.07–2.66)	0.021*
Disease behavior				
B1 (non-structuring-nonpenetrating)	52 (32.91)	186 (53.14)	0.43 (0.29–0.64)	0.000**
B2 (stricturing)	82 (51.90)	120 (34.29)	2.06 (1.41–3.03)	0.000**
B3 (penetrating)	5 (3.16)	21 (6.00)	0.51 (0.18–1.38)	0.179
B2 and B3	19 (12.03)	23 (6.57)	1.94 (1.02–3.68)	0.039*
Perianal lesions	31 (19.62)	123 (35.14)	0.45 (0.28–0.70)	0.000**
Disease active state (CDAI $\geq$ 150)	127 (80.38)	303 (86.57)	0.63 (0.38–1.04)	0.073
Other complications				
Joint pain	2 (1.27)	12 (3.43)	0.36 (0.08–1.63)	0.244
Fever	9 (5.70)	55 (15.71)	0.32 (0.15–0.67)	0.002**
Mouth ulcer	1 (0.63)	14 (4.00)	0.15 (0.02–1.17)	0.045*
Abdominal mass	6 (3.80)	14 (4.00)	0.94 (0.35–2.51)	0.913
Abdominal surgery for CD	44 (27.85)	87 (24.86)	1.16 (0.76–1.78)	0.476

Body weight and disease course were showed as median (IQR). Albumin and age at onset were showed as mean (SD). \*, P value is less than 0.05, with statistical difference; \*\*, P value is less than 0.01, with significant statistical difference. CD, Crohn's disease; SD, standard deviation; g/L, gram per liter.

**Table S5** Comparison of basic situation, disease characteristics and complications between L4-jejunal and L4-EGD

Clinical variable	L4-jejunal	L4-EGD	Odds ratio	
	N=158 (%)	N=26 (%)	(95% CI)	P value
Male	125 (79.11)	21 (80.77)	0.90 (0.31–2.57)	0.847
Body weight (kg)	52.00 (15.00)	53.25 (16.62)		0.709
Albumin (g/L)	33.82 (6.95)	33.94 (6.89)		0.935
Age at onset (year)	31.91 (11.30)	33.46 (12.81)		0.526
Disease course (month)	12.00 (30.00)	10.00 (69.00)		0.516
Smoker	41 (25.95)	7 (26.92)	0.95 (0.37–2.42)	0.917
Disease behavior				
B1 (non-structuring-nonpenetrating)	52 (32.91)	14 (53.85)	0.42 (0.18–0.97)	0.039*
B2 (stricturing)	82 (51.90)	10 (38.46)	1.72 (0.73–4.03)	0.204
B3 (penetrating)	5 (3.16)	1 (3.85)	0.81 (0.09–7.28)	1.000
B2 and B3	19 (12.03)	1 (3.85)	3.41 (0.43–26.69)	0.214
Perianal lesions	31 (19.62)	4 (15.38)	1.34 (0.43–4.17)	0.789
Disease active state (CDAI $\geq$ 150)	127 (80.38)	21 (80.77)	0.97 (0.34–2.79)	0.963
Other complications	17 (10.76)	6 (23.08)	0.40 (0.14–1.13)	0.104
Joint pain	2 (1.27)	1 (3.85)	0.32 (0.02–3.66)	0.369
Fever	9 (5.70)	2 (7.69)	0.72 (0.14–3.56)	0.656
Mouth ulcer	1 (0.63)	3 (11.54)	0.04 (0.01–0.49)	0.009**
Abdominal mass	6 (3.80)	0 (0.00)		0.597
Abdominal surgery for CD	44 (27.85)	2 (7.69)	4.63 (1.05–20.42)	0.028*

Body weight and disease course were showed as median (IQR). Albumin and age at onset were showed as mean (SD). \*, P value is less than 0.05, with statistical difference; \*\*, P value is less than 0.01, with significant statistical difference. CD, Crohn's disease; EGD, esophago-gastroduodenal; SD, standard deviation; g/L, gram per liter.

**Table S6** Comparison of basic situation, disease characteristics and complications between L4-EGD and non-L4 patients

Clinical variable	L4-EGD	Non-L4 patients	Odds ratio	P value
	N=26 (%)	N=350 (%)	(95% CI)	
Male	21 (80.77)	237 (67.71)	2.00 (0.73–5.44)	0.166
Body weight (kg)	53.25 (16.62)	50.00 (12.00)		0.272
Albumin (g/L)	33.94 (6.89)	32.94 (7.40)		0.505
Age at onset (year)	33.46 (12.81)	31.04 (13.10)		0.364
Disease course (month)	10.00 (69.00)	9.50 (22.00)		0.467
Smoker	7 (26.92)	60 (17.14)	1.78 (0.71–4.42)	0.209
Disease behavior				
B1 (non-structuring-nonpenetrating)	14 (53.85)	186 (53.14)	1.02 (0.46–2.28)	0.945
B2 (stricturing)	10 (38.46)	120 (34.29)	1.19 (0.52–2.72)	0.666
B3 (penetrating)	1 (3.85)	21 (6.00)	0.62 (0.08–4.85)	1.000
B2 and B3	1 (3.85)	23 (6.57)	0.56 (0.07–4.38)	1.000
Perianal lesions	4 (15.38)	123 (35.14)	0.33 (0.11–0.99)	0.040*
Disease active state (CDAI $\geq$ 150)	21 (80.77)	303 (86.57)	0.65 (0.23–1.81)	0.382
Other complications				
Joint pain	1 (3.85)	12 (3.43)	1.12 (0.12–9.01)	1.000
Fever	2 (7.69)	55 (15.71)	0.44 (0.10–1.94)	0.398
Mouth ulcer	3 (11.54)	14 (4.00)	3.13 (0.83–11.67)	0.104
Abdominal mass	0 (0.00)	14 (4.00)		0.611
Abdominal surgery for CD	2 (7.69)	87 (24.86)	0.25 (0.05–1.08)	0.057

Body weight and disease course were showed as median (IQR). Albumin and age at onset were showed as mean (SD). \*, P value is less than 0.05, with statistical difference. CD, Crohn's disease; EGD, esophago-gastroduodenal; SD, standard deviation; g/L, gram per liter.



**Table S7** The distribution of 14 kinds of food intolerance in L4 CD subgroups

Food category	Non-L4 group N=132 (%)	L4-proximal ileal N=134 (%)	L4-jejunal N=76 (%)	L4-EGD N=13 (%)
Shrimp	14(10.61)	16(11.94)	10(13.16)	0(0.00)
Tomato	66(50.00)	86(64.18)	47(61.84)	6(46.15)
Soybean	62(46.97)	72(53.73)	47(61.84)	6(46.15)
Rice	73(55.30)	84(62.69)	53(69.74)	6(46.15)
Pork	4(3.03)	2(1.49)	3(3.95)	0(0.00)
Milk	31(23.48)	20(14.93)	14(18.42)	4(30.77)
Wheat	36(27.27)	39(29.10)	25(32.89)	3(23.08)
Egg	83(62.88)	84(62.69)	42(55.26)	8(61.54)
Crab	10(7.58)	16(11.94)	4(5.26)	0(0.00)
Corn	79(59.85)	88(65.67)	48(63.16)	8(61.54)
Cod	13(9.85)	10(7.46)	6(7.89)	3(23.08)
Chicken	4(3.03)	4(2.99)	7(9.21)	0(0.00)
Beef	1(0.76)	3(2.24)	0(0.00)	0(0.00)
Mushroom	13(9.85)	12(8.96)	6(7.89)	0(0.00)

CD, Crohn's disease; EGD, esophago-gastroduodenal.

**Table S8** Comparison of 14 kinds of food intolerance in L4-proximal ileal and non-L4 CD patients

Food category	L4-proximal ileal	Non-L4 patients	Odds ratio	P value
	N=134 (%)	N=132 (%)	(95% CI)	
Shrimp	16(11.94)	14(10.61)	1.14 (0.53–2.44)	0.731
Tomato	86(64.18)	66(50.00)	1.79 (1.09–2.92)	0.019*
Soybean	72(53.73)	62(46.97)	1.31 (0.81–2.12)	0.270
Rice	84(62.69)	73(55.30)	1.35 (0.83–2.21)	0.221
Pork	2(1.49)	4(3.03)	0.48 (0.08–2.69)	0.445
Milk	20(14.93)	31(23.48)	0.57 (0.30–1.06)	0.076
Wheat	39(29.10)	36(27.27)	1.09 (0.64–1.86)	0.740
Egg	84(62.69)	83(62.88)	0.99 (0.60–1.63)	0.974
Crab	16(11.94)	10(7.58)	1.65 (0.72–3.79)	0.231
Corn	88(65.67)	79(59.85)	1.28 (0.78–2.11)	0.326
Cod	10(7.46)	13(9.85)	0.73 (0.31–1.74)	0.489
Chicken	4(2.99)	4(3.03)	0.98 (0.24–4.02)	1.000
Beef	3(2.24)	1(0.76)	3.00 (0.30–29.21)	0.622
Mushroom	12(8.96)	13(9.85)	0.90 (0.39–2.05)	0.803

\*, P value is less than 0.05, with statistical difference. CD, Crohn's disease.

**Table S9** Comparison of 14 kinds of food intolerance in L4-jejunal and non-L4 CD patients

Food category	L4-jejunal	Non-L4 patients	Odds ratio	P value
	N=73 (%)	N=132 (%)	(95% CI)	
Shrimp	10(13.16)	14(10.61)	1.33 (0.56–3.18)	0.510
Tomato	47(61.84)	66(50.00)	1.80 (1.00–3.25)	0.047*
Soybean	47(61.84)	62(46.97)	2.04 (1.13–3.67)	0.017*
Rice	53(69.74)	73(55.30)	2.14 (1.15–3.97)	0.015*
Pork	3(3.95)	4(3.03)	1.37 (0.29–6.30)	0.701
Milk	14(18.42)	31(23.48)	0.77 (0.38–1.57)	0.476
Wheat	25(32.89)	36(27.27)	1.38 (0.75–2.57)	0.296
Egg	42(55.26)	83(62.88)	0.80 (0.44–1.43)	0.453
Crab	4(5.26)	10(7.58)	0.70 (0.21–2.34)	0.569
Corn	48(63.16)	79(59.85)	1.28 (0.71–2.33)	0.404
Cod	6(7.89)	13(9.85)	0.82 (0.29–2.25)	0.700
Chicken	7(9.21)	4(3.03)	3.39 (0.95–12.01)	0.057
Beef	0(0.00)	1(0.76)		1.000
Mushroom	6(7.89)	13(9.85)	0.82 (0.29–2.25)	0.700

\*, P value is less than 0.05, with statistical difference. CD, Crohn's disease.

**Table S10** Comparison of 14 kinds of food intolerance in L4-EGD and non-L4 CD patients

Food category	L4-EGD	Non-L4 patients	Odds ratio	
	N=13 (%)	N=132 (%)	(95% CI)	P value
Shrimp	0(0.00)	14(10.61)		0.616
Tomato	6(46.15)	66(50.00)	0.85 (0.27–2.68)	0.791
Soybean	6(46.15)	62(46.97)	0.96 (0.30–3.03)	0.955
Rice	6(46.15)	73(55.30)	0.69 (0.22–2.17)	0.527
Pork	0(0.00)	4(3.03)		1.000
Milk	4(30.77)	31(23.48)	1.44 (0.41–5.02)	0.515
Wheat	3(23.08)	36(27.27)	0.80 (0.20–3.07)	1.000
Egg	8(61.54)	83(62.88)	0.94 (0.29–3.04)	1.000
Crab	0(0.00)	10(7.58)		0.600
Corn	8(61.54)	79(59.85)	1.07 (0.33–3.46)	0.906
Cod	3(23.08)	13(9.85)	2.74 (0.66–11.26)	0.158
Chicken	0(0.00)	4(3.03)		1.000
Beef	0(0.00)	1(0.76)		1.000
Mushroom	0(0.00)	13(9.85)		0.607

CD, Crohn's disease; EGD, esophago-gastroduodenal.

**Table S11** Comparison of body mass index between L4 and non-L4 CD patients

Variable	All CD patients N=481	L4 patients N=301	Non-L4 patients N=180	P value
Body mass index		19.58(3.55)	18.25 (3.42)	0.000**

Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation).

\*\*, P value is less than 0.01, with statistical difference. CD, Crohn's disease.

**Table S12** Comparison of body mass index between L4-proximal ileal and non-L4 CD patients

Variable	L4-proximal ileal N=182	Non-L4 patients N=180	P value
Body mass index	19.97 (3.60)	18.25 (3.42)	0.000**

Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation).

\*\*, P value is less than 0.01, with statistical difference. CD, Crohn's disease.

**Table S13** Comparison of body mass index between L4-jejunal and non-L4 CD patients

Variable	L4-jejunal N=105	Non-L4 patients N=180	P value
Body mass index	18.96 (3.42)	18.25 (3.42)	0.092

Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation).

CD, Crohn's disease.

**Table S14** Comparison of body mass index between L4-EGD and non-L4 CD patients

Variable	L4-EGD N=14	Non-L4 patients N=180	P value
Body mass index	19.16(3.39)	18.25 (3.42)	0.336

Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation). CD, Crohn's disease; EGD, esophago-gastroduodenal.

**Table S15** Comparison of body mass index between L4-proximal ileal and L4-jejunal

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Variable	L4-proximal ileal N=182	L4-jejunal N=105	P value
Body mass index	19.97 (3.60)	18.96 (3.42)	0.021 <sup>a</sup>

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Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation).

<sup>a</sup>, although P value is less than 0.05, there is no with statistical difference after Bonferroni correction. CD, Crohn's disease.

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**Table S16** Comparison of body mass index between L4-proximal ileal and L4-EDG

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Variable	L4-proximal ileal N=182	L4-EDG N=14	P value
Body mass index	19.97 (3.60)	19.16 (3.39)	0.422

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Data of body mass index were followed normal distribution. Data were showed as mean (standard deviation).

CD, Crohn's disease; EGD, esophago-gastroduodenal.

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**Table S17** Comparison of body mass index between L4-jejunal and L4-EDG

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Variable	L4-jejunal N=105	L4-EDG N=14	P value
Body mass index	18.96 (3.42)	19.16 (3.39)	0.833

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Data of body mass were index followed normal distribution. Data were showed as mean (standard deviation).

CD, Crohn's disease; EGD, esophago-gastroduodenal.

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**Table S18** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4 CD patients and non-L4 CD patients

Variables	L4 CD patients	Non-L4 CD patients	P value
Iron	11.63 (10.37)	9.92 (7.95)	0.051
Calcium	2.15 (0.17)	2.13 (0.17)	0.079
Magnesium	0.83 (0.09)	0.85 (0.09)	0.042*
Ferritin	106.51 (151.81)	150.30 (187.69)	0.005**
Vitamin B12	470.94 (372.39)	518.37 (444.82)	0.210
Folate	7.89 (5.83)	8.16 (7.30)	0.654
Vitamin D	81.16 (22.52)	80.41 (19.48)	0.401

All variables except vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). \*, P value is less than 0.05; \*\*, P value is less than 0.01. CD, Crohn's disease.

**Table S19** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4-proximal ileal patients and non-L4 CD patients

Variables	L4-proximal ileal	Non-L4 patients	P value
Iron	11.95 (11.01)	9.92 (7.95)	0.047 <sup>a</sup>
Calcium	2.16 (0.17)	2.13 (0.17)	0.013 <sup>a</sup>
Magnesium	0.84 (0.09)	0.85 (0.09)	0.178
Ferritin	105.51 (156.81)	150.30 (187.69)	0.012 <sup>a</sup>
Vitamin B12	470.50 (380.71)	518.37 (444.82)	0.258
Folate	7.96 (5.58)	8.16 (7.30)	0.766
Vitamin D	80.25 (15.20)	80.41 (19.48)	0.594

All variables except vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). <sup>a</sup>, although P value is less than 0.05, there is no with statistical difference after Bonferroni correction. CD, Crohn's disease.

**Table S20** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4-jejunal patients and non-L4 CD patients

Variables	L4-jejunal	Non-L4 patients	P value
Iron	11.00 (8.88)	9.92 (7.95)	0.353
Calcium	2.13 (0.18)	2.13 (0.17)	0.926
Magnesium	0.83 (0.09)	0.85 (0.09)	0.039 <sup>a</sup>
Ferritin	96.36 (133.85)	150.30 (187.69)	0.009 <sup>a</sup>
Vitamin B12	477.70 (351.16)	518.37 (444.82)	0.473
Folate	7.66 (6.00)	8.16 (7.30)	0.600
Vitamin D	83.14 (9.48)	80.41 (19.48)	0.277

All variables except vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). <sup>a</sup>, although P value is less than 0.05, there is no with statistical difference after Bonferroni correction. CD, Crohn's disease.

**Table S21** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4 CD patients and non-L4 CD patients

Variables	L4-EGD	Non-L4 patients	P value
Iron	10.63 (9.06)	9.92 (7.95)	0.743
Calcium	2.12 (0.15)	2.13 (0.17)	0.693
Magnesium	0.82 (0.07)	0.85 (0.09)	0.206
Ferritin	164.61 (173.31)	150.30 (187.69)	0.769
Vitamin B12	443.41 (391.33)	518.37 (444.82)	0.515
Folate	8.09 (6.52)	8.16 (7.30)	0.974
Vitamin D	87.69 (40.80)	80.41 (19.48)	0.898

All variables except vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). CD, Crohn's disease; EGD, esophago-gastroduodenal.



**Table S22** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4 CD patients and non-L4 CD patients

Variables	L4-proximal ileal	L4-jejunal	P value
Iron	11.95 (11.01)	11.00 (8.88)	0.514
Calcium	2.16(0.17)	2.13(0.18)	0.061
Magnesium	0.84(0.09)	0.83 (0.09)	0.313
Ferritin	105.51 (156.81)	96.36 (133.85)	0.634
Vitamin B12	470.50(380.71)	477.70(351.16)	0.885
Folate	7.96(5.58)	7.66(6.00)	0.699
Vitamin D	80.25 (15.20)	83.14 (9.48)	0.656

All variables except vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). CD, Crohn's disease.

**Table S23** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4 CD patients and non-L4 CD patients

Variables	L4-proximal ileal	L4-EGD	P value
Iron	11.95 (11.01)	10.63 (9.06)	0.651
Calcium	2.16(0.17)	2.12 (0.15)	0.177
Magnesium	0.84(0.09)	0.82 (0.07)	0.441
Ferritin	105.51 (156.81)	164.61 (173.31)	0.153
Vitamin B12	470.50(380.71)	443.41 (391.33)	0.787
Folate	7.96(5.58)	8.09 (6.52)	0.926
Vitamin D	80.25 (15.20)	87.69 (40.80)	0.577

All variables except Vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). CD, Crohn's disease; EGD, esophago-gastroduodenal.

**Table S24** Comparison of serum iron, calcium, magnesium, ferritin, vitamin B12, folate and vitamin D in L4 CD patients and non-L4 CD patients

Variables	L4-jejunal	L4-EGD	P value
Iron	11.00(8.88)	10.63(9.06)	0.885
Calcium	2.13(0.18)	2.12(0.15)	0.677
Magnesium	0.83(0.09)	0.82(0.07)	0.782
Ferritin	96.36(133.85)	164.61(173.31)	0.081
Vitamin B12	477.70(351.16)	443.41(391.33)	0.728
Folate	7.66(6.00)	8.09(6.52)	0.794
Vitamin D	83.14(9.48)	87.69(40.80)	0.738

All variables except Vitamin D were showed as mean (standard deviation) since they were normally distributed data, vitamin D were showed as median (IQR). CD, Crohn's disease; EGD, esophago-gastroduodenal.

**Table S25** Logistic regression analysis of independent relevant factors of L4 CD patients

Factors	Odds ratio (95% CI)	P value
BMI	1.186 (1.084–1.297)	0.000
Disease course	1.010 (1.000–1.019)	0.043
Stricturing behavior	4.864 (2.349–10.072)	0.000
Tomato FI	1.330 (1.044–1.693)	0.021

BMI, disease course, stricturing behavior and tomato intolerance were the independent risk factors of the L4 phenotype after adjusting for body weight. CD, Crohn's disease; BMI, body mass index; FI, food intolerance.