Fusobacterium nucleatum septicemia and portal vein thrombosis [brief report]

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Table 1. Summary of resul s of liver func ion es s for a pa ien wi h acu e hepa i is A who had received preexposure inac iva ed hepa i is A virus vaccine.

	Da e of es					
Finding	13/7/98	14/7/98	16/7/98	20/7/98	22/7/98	11/8/98
To al pro ein level (g/L)	64	63	65	74	78	76
Albumin level (g/L)	33	32	31	34	35	43
To al bilirubin level (μmol/L)	50	57	81	86	96	14
SAP level (U/L)	356	284	280	489	470	114
ALT level (U/L)	2,273	2,037	2,097	427	271	54
AST level (U/L)	3,247	1,762	1,541	186	114	35

NOTE. ALT = alanine amino ransferase; AST = aspar a e amino ransferase; SAP = serum alkaline phospha ase.

A seroconversion failure ra e of 0.1% has been found, and hese failures occurred for smokers, alcoholics, immunocompromised persons, and pa ien s wi h concurren illness wi h hepa i is C or B (D. R. Nalin, unpublished da a). Our pa ien did no have any of he risk fac ors associa ed wi h low ra es of seroconversion. One considera ion is he use of inhaled s eroids by our pa ien , which may have been associa ed wi h he lack of seroconversion.

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Fuso acterium nucleatum Septicemia and Portal Vein Thrombosis

Like *Fusobacterium necrophorum, Fusobacterium nucleatum* is capable of causing hrombophlebi is of he in ernal jugular vein in previously heal hy young adul s, usually following pharyngo- onsillar infec ion [1, 2]. Al hough complica ions of venous hrombosis a various loca ions have been described in cases of *F. nucleatum* sep icemia, por al vein hrombosis has never been repor ed. We describe a pa ien wi h *F. nucleatum* sep icemia and por al vein hrombosis.

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A 23-year-old man was hospi alized in February 1995 because of a 14-day his ory of abdominal pain, vomi ing, rigors, and fever (empera ure o 40°C). Five weeks before he onse of symp oms, he was rea ed wi h fene icillin for oropharyngeal infec ion. Physical examina ion was unremarkable. Labora ory es s showed an increased WBC coun of 16.4×10^9/L, wi h 80% neu rophils and a lef shif , and oxic changes. Liver func ion es s revealed mild eleva ions in levels of ransaminases (aspar a e amino ransferase, 61 U/L; alanine amino ransferase, 113 U/L), alkaline phospha ase (192 U/L), and γ-glu amyl ransferase (144 U/L), and a normal bilirubin level. Ul rasonographic examina ion of he abdomen demons ra ed hepa osplenomegaly.

Af er 5 days of imipenem rea men (2 g/d), his symp oms aba ed, and he pa ien was discharged. No pa hogens were isola ed from cul ures of blood, urine, and s ool. Fif een days la er, he was readmi ed wi h fever, abdominal pain, jaundice, and respira ory dis ress. Ul rasonographic examina ion by means of he pulsed duplex Doppler echnique demons ra ed hepa osplenomegaly, hrombosis of he por al vein (which was enlarged), and ex ensive colla eral vessels in he hepa ic hilus. Imipenem and heparin were

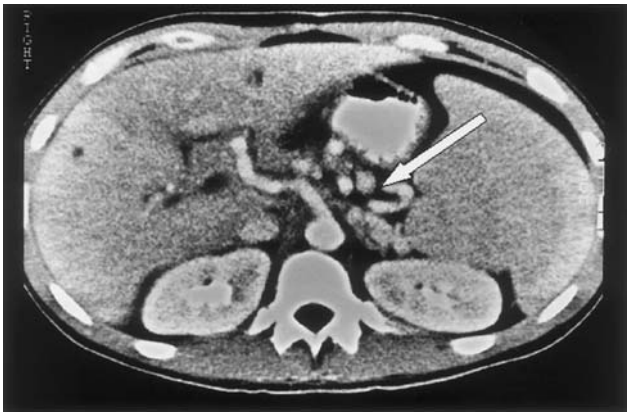

Figure 1. CT scan (wi h in ravenous con ras ma erial) of he abdomen of a pa ien wi h *Fusobacterium nucleatum* sep icemia and por al vein hrombosis; he scan shows splenomegaly and colla eral vessels (*arrow*) in he hili of he liver and spleen. The por al vein is no filled wi h con ras ma erial because of hrombosis.

adminis ered. The pa ien 's condi ion worsened, and he was ransferred o he Academic Medical Cen er of he Universi y of Ams erdam.

A he ime of physical examina ion, he pa ien was ill-appearing; findings included normal vi al signs, hepa osplenomegaly, and emporary pericardial and pleural fric ion rubs. Repea ed CT of he abdomen (figure 1) showed por al vein hrombosis and an increasing spleen size (maximum span, 25 cm). Upper gas roin- es inal endoscopy demons ra ed esophageal varices. Labora ory inves iga ions showed no au oimmune or sys emic disease or hypercoagulable s a e. Adminis ra ion of he an ibio ic and heparin was s opped. Af er 5 days, fever and rigors re urned, accompanied by leukocy osis. Of 14 blood specimens for cul ure ha were ob- ained in his febrile phase, five became posi ive for *F. nucleatum* on days 7–10; he organism was suscep ible o penicillin and me ronidazole bu resis an o ery hromycin (findings were confirmed by he Labora ory for Bac erial Iden ifica ion of he Na- ional Ins i u e for Heal h and Environmen , Bil hoven, he Ne herlands). A 6-week course of herapy wi h in ravenous penicillin (12 million U/d) resul ed in recovery, al hough por al vein hrombosis persis ed.

Our pa ien had a clinical syndrome of fever, por al vein hrombosis, and ransien pleuropericardi is. Blood cul ures finally became posi ive for *F. nucleatum* af er prolonged incuba ion (7–10 days) and prolonged subcul uring (3 days). We considered wo hypo heses for he pa hogenesis of his clinical syndrome. Firs , preexis en por al vein hrombosis may be infec ed wi h *F. nucleatum* from an unknown source. Second, oropharyngeal infec ion 5 weeks before he onse of symp oms may be followed by *F. nucleatum* sep icemia resul ing in hrombophlebi is and hrombosis of he por al vein.

One argumen in favor of he second hypo hesis is he changing image of he por al vein a repea ed ul rasonographic examina ions. Firs , an echogenic hrombus wi hin a dila ed por al vein and he lack of varia ion in he diame er of he por al vein wi h respira ion were demons ra ed, findings highly indica ive of acu e por al vein occlusion [3]; 2 mon hs la er, he diame er of he por al vein was very small, as is he case wi h long-s anding hrombus [4]. Ano her argumen for he second hypo hesis concerns sep icemia due o *F. nucleatum.* Complica ions of venous hrombosis a various loca- ions have been described in cases of fusobac erium sep icemia [2, 5]. The abili y of virulen *Fusobacterium* s rains o cause hrombophlebi is and me as a ic abscesses can probably be ascribed o he lipid A componen of he lipopolysaccharide endo oxin of *Fusobacterium* species. This virulence fac or has been shown o be capable of in vi ro ac iva ion of he human Hageman fac or and he in rinsic pa hway of coagula ion [6]. Aggrega ion of pla ele s by *F. necrophorum* has been demons ra ed in vi ro and is also a virulence proper y [7, 8].

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