

Pyogenic Discitis in Female after Delivery and Pelvic Surgery

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Abstract

Background: Pyogenic discitis most frequently occurs after home delivery, hemorrhoidectomy, and dilatation and curettage. Discitis is generally due to blood borne bacterial invasion of the disc from adjacent end-plate via communicating vessels. Infective discitis remains an uncommon, but potentially serious cause for back pain. Delayed diagnosis can occur and a high index of suspicion may occur.

Methods: The study included 30 patients suffering from localized low back pain with limitation of movement.

Diagnosis was made by history, physical examination and investigation mainly E.S.R and MRI.

Results: 50.3% of patient with discitis had a history of vaginal delivery, 15% had a history of hemorrhoidectomy and 10% had a history of dilatation and curettage and cesarean section surgery. All patients had elevated E.S.R, Positive C-reactive protein and positive MRI finding.

Conclusion, We must think of Pyogenic discitis in any patient with sever backache, fever, local tenderness, and high ESR.

Key words: Discitis, Pyogenic, Infection

AL- Kindy Col Med J 2007 Vol;4 No.1 P: 82-86

Introduction:

Discitis is an inflammatory lesion of intervertebral disc that occurs in adult but more commonly in children¹. The infection probably begins in one of the contiguous end-plate and the disc is infected secondarily. Sever back pain begins insidiously is characteristic of the disease without history of trauma. Rarely elevation of temperature often there a delay in diagnosis because of subtle presentation. The laboratory study may be misleading. Normal white blood cell count are common, radiographs often show no abnormalities early in the course of the illness and even more sensitive diagnostic tests such as bone scans may not become positive for a week, when the diagnosis is suspected MRI is the most reliable confirmatory test. Infection of the disc often considered with vertebral as both always present together and share much of the same pathophysiology². Discitis and associated vertebral are important cause of debilitating neurologic injury². The lumber region is the most commonly affected followed by cervical and then the thoracic spine^{1,2}. The estimated annual frequency is 0.037 for disc space infection, 0.037 for vertebral and 0.037 epidural abscesses¹¹.

A certain group of people are at risk. These are the smokers, the obese, the malnourished, immunosuppressed either acquired immunodeficiency or medical treatment for tumors, arthritis, organ transplantation, drug addicts, diabetics, or those who undergone recent urinary tract instrumentation.

Pathophysiology:

The infection reaches disc space via blood stream from other sites. The spinal arteries from two lateral

anastomatic chains and one median anastomosing along the posterior surface of the vertebral bodies. These arteries are the origin of the periosteal arteries which in turn give rise to arteries³. In adult these intermetaphyseal arteries degenerate, and direct diffusion from adjacent endplate occurs, it represent the only source of nutrients for the disc. Septic emboli travel through this arterial system entering the arteries, which have become end arteries in the adult causing a large area of infarction^{2, 3}. This-infracted area is liable to localized infection that subsequently spreads through the vertebral body in to poorly vascularized disc space. Infection then can spread to the epidural space or Para spinal soft tissues The venous system of the spine -Baston plexus-in the epidural space drains each segmental level and is continuous with pelvic veins. High intraabdominal pressure that leads to retrograde flow through this plexus has been postulated to allow spread of infection from pelvic organs^{3,4,5}. The incidence of discitis in USA is from 1 in 100.000 to 1 in 250.000 in developed nations incidence of discitis is similar to that in united state⁽¹⁾. No Specific predilection for a given race has been note.^(1,2)

Causes

Includes: urinary tract infection, pneumonia and pelvic surgery and surgery at the affected sites. The commonest micro-organism involved is staphylococcus aureus, however E.coli and proteus species are common in patients with urinary infection Pseudomonas aeruginosa and Klebsiella are other gram-negative organism observed in intravenous drug abusers. In spontaneous discitis the most common organism are staphylococcus aureus, staphylococcus epidermidis and streptococcus^(4,5,6).

Symptoms:

Unfortunately, in adults, discitis has a slow insidious onset, delaying diagnosis for months. Back pain with localized tenderness is the initial presenting complaint which is exacerbated by movement, these symptoms are not alleviated with conservative treatment (analgesics, bed rest) ⁽⁶⁾. In the postoperative patients usually the symptoms begin days to weeks after surgery. Symptoms are similar to those experienced by patients with spontaneous discitis, consisting of pain without neurologic abnormality. Limited movement and localized tenderness also occur. However, superficial signs of infection are rare seen in only 10% of cases. Diagnosis rarely is delayed in postoperative patients, which is the main reason that neurological deficit is rare ^(6,7)

Physical Signs:

- Localized tenderness.
- Restricted mobility.
- Para spinal muscle spasm.

Rarely neurological deficit (radiculopathy.myopathy). Fever, chills, weight loss, may be presented but are not common. There are many investigations and tests that aid in the diagnosis of discitis but MRI is the most sensitive and specific test, that, during the early stage of spinal infection or rarely when only the vertebral body is infected but no disc infection present, MRI can demonstrate abnormal areas of low signal intensity on T1 weighted and high signal intensity on T2 weighted image within the bone marrow space of the vertebral body . This finding is indistinguishable from bony tumor or metastasis unless associated findings such as Para vertebral soft tissue inflammation or abscess are demonstrated once the infectious processes reach the disc and adjacent vertebral body ^(7,8).

Methods

Thirteen patients were selected, who were suffering from severe lower backache with severe shouting on tapping to spinous process plus signs and symptoms of sciatica, with history of low grade fever which is gradually followed by hectic fever. High level of E.S.R. History of previous pelvic surgery, recent vaginal delivery, cesarean section, hemorrhoidectomy , dilatation and curettage, history of urinary tract infection .

All patients had the following investigation:- E.S.R , W.B.C count, Blood culture, IFAT test .General urine examination, EGG,C-reactive protein, plain radiograph of the back in antero-posterior and lateral position , Chest X-ray and MRI

Results

All patients had elevated E.S.R . the range from 85-125 mm\hour. W.B.C. count was elevated in only six patients only, others had normal range probably due to treatment of the primary site of infection. Four patients had positive blood culture, three were positive for E.coli and one was positive for staphylococcus aureus.

Regarding the predisposing factors 16 patient (50.3) gave history of normal vaginal delivery, 5 patient (15%) gave history of hemorrhoidectomy,(13%)after cesarean section, and (10%)after dilatation and curettage surgery.(**Table-1**).

All patients showed positive reaction for C-reactive protein.

Five patients showed urinary tract infection by urine analysis, the urine demonstrate E.coli in all of them.

High vaginal swab was done for all with cervical swabs, and two cases show positive gram stain for intra cellular diplococci, which was confirmed by culture (**Table-2**).

MRI-findings:

A distinct pattern can be seen, an increase signal intensity of disc space and adjacent end plate on T2 - weighted and decrease signal intensity on T1 - weighted image. In more severe cases a disc space narrowing , irregularity of the end plate and paravertebral or epidural soft tissue edema, even abscess can be shown on MRI.

Plain X-ray:

It showed only a loss of normal curvatures of vertebral column and narrowing of disc space mainly between L4 - L5 or L5 - S1 with irregularities and erosion of the adjacent endplate and in two patients calcification of the affected disc.

Discussion

Many studies reported postoperative discitis after spinal surgery, but few of them referred to discitis as a common postoperative gynecological and pelvic surgery.

In our study 16 patients from 30 showed previous history of normal vaginal delivery (50.3%) and 15% of the patients with discitis after , 6% after hysterectomy, 10% after Dilatation and curettage operation and 13% after cesarean section, the cases that show positive blood culture were only after D and C and . The pain started from 2-5 weeks after surgical interventions mainly in those with normal delivery. It seems that frequent vaginal examination may predispose to bacteremia after delivery and most of the cases of deliveries were home delivery with possibilities of septic technique. Prophylactic antibiotics may prevent iatrogenic intervertebral infection and post operative introduction of antibiotic may prevent the development of discitis (Al-Sakini) ^(9,10).Discitis is

generally due to blood-borne bacterial invasion of the disc from adjacent end-plate via communicating vessels. The most common bacterial agent is staphylococcus aureus but in our study 4 patients had positive blood culture 3 of them E-coli and only one staphylococcus aureus we think this because the site of discitis we studied in lumbosacral area due to pelvic infection.

From our study discitis can be diagnosed clinically by taping on spinous process which causes sever tenderness with limitation of movement plus positive SLR test together with history of pelvic surgery or delivery. We can conclude that these cases can be

managed as an outpatient cases unless there is neurological deficit. There are many protocols of treatment, but one should depend on selective

antibiotics, non steroidal anti inflammatory drugs with bed rest for at least three weeks and follow up to see the decrease e.g. in the level of ESR and clinical evaluation. It is unfortunate that we do not have the facilities to do tuberculin test for those patients with backache, so we depend on MRI to exclude the cases of T.B in which it show a large amount of Para-spinal soft tissue swelling. We can conclude that discitis should be put in mind for any patient with sudden backache without the usual cases of sciatica like lifting heavy object, trauma, sudden movement plus fever after pelvic surgery. The best way of diagnosis is proper clinical evaluation confirmed by MRI and ESR, but still it is the unusual cause of backache after pelvic surgery or after normal vaginal delivery.

(Table-1)

Show the Predisposing Factors and the Period after Which the Symptoms Appear

Serial no.	Age	Previous History	Place of Delivery
1	40	Normal vaginal	2 home delivery
2	39	Hysterectomy	2
3	39	Normal vaginal D.	3 home delivery
4	39	Hysterectomy	2
5	38	N.V.D	4 home delivery
6	37	Cls.	2
7	37	D and C	3
8	37	Cls.	3
9	36	Hemorrhoidectomy	2
10	35	D and C	4
11	35	N.V.D	4 hospital delivery
12	35	Hemorrhoidectomy	3
13	35	N.V.D	4 home delivery
14	35	Cls.	3
15	33	N.V.D	4 home delivery
16	33	N.V.D	4 home delivery
17	33	N.V.D	3
18	32	D and C	4 hospital delivery
19	31	N.V.D	4 hospital delivery
20	31	Cls.	3
21	31	N.V.D	4 home delivery
22	30	Hemorrhoidectomy	3
23	30	Hemorrhoidectomy	2
24	30	N.V.D	4 home delivery
25	30	Hemorrhoidectomy	4
26	30	N.V.D	5 home delivery
27	30	N.V.D	4 home delivery
28	30	N.V.D	4 hospital delivery
29	30	N.V.D	5 home delivery
30	30	N.V.D	5 home delivery

(Table-2)

Showing Laboratory Investigation

Serial no.	E.S.R	Bl. Culture	G.U.E.	W.B.Cs	IFAT	C.R.P	H.V.S
1	70	-ve	normal	normal	-ve	+ve	-ve
2	78	-ve	normal	normal	-ve	+ve	+ve
3	81	-ve	bacteria +ve	normal	-ve	+ve	+ve
4	82	-ve	normal	normal	-ve	+ve	+ve
5	86	+ve	normal	normal	-ve	+ve	+ve
6	86	-ve	normal	normal	-ve	+ve	+ve
7	88	-ve	normal	normal	-ve	+ve	+ve
8	88	-ve	bacteria +ve	elevated	-ve	+ve	+ve
9	90	-ve	normal	normal	-ve	+ve	+ve
10	92	-ve	normal	normal	-ve	+ve	ce+ve
11	94	-ve	normal	normal	-ve	+ve	+ve
12	96	+ve	normal	normal	-ve	+ve	+ve
13	97	+ve	normal	normal	-ve	+ve	+ve
14	97	-ve	normal	normal	-ve	+ve	+ve
15	99	-ve	normal	normal	-ve	+ve	+ve
16	107	-ve	bacteria +ve	elevated	-ve	+ve	ce+ve
17	109	+ve	bacteria +ve	normal	-ve	+ve	+ve
18	109	-ve	normal	elevated	-ve	+ve	+ve
19	120	-ve	normal	elevated	-ve	+ve	+ve
20	125	-ve	bacteria +ve	normal	-ve	+ve	+ve
21	126	-ve	normal	normal	-ve	+ve	+ve
22	127	-ve	normal	normal	-ve	+ve	+ve
23	129	-ve	normal	normal	-ve	+ve	+ve
24	130	-ve	normal	normal	-ve	+ve	+ve
25	130	-ve	normal	normal	-ve	+ve	-ve
26	133	-ve	normal	normal	-ve	+ve	-ve
27	135	-ve	normal	normal	-ve	+ve	-ve
28	136	-ve	normal	normal	-ve	+ve	-ve
29	136	-ve	normal	normal	-ve	+ve	-ve
30	136	-ve	normal	normal	-ve	+ve	-ve

Conclusion:

We must think of Discitis in every patient with sever backache. fever. local tenderness and high ESR. Confirmation of the diagnosis is by MRI.

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Received 27th Oct.2005 Accepted 11th April 2006.