Which facial views for facial trauma?

Report by Kerstin Hogg, Clinical Research Fellow
Checked by Margaret Maloba, Specialist Registrar
doi: 10.1136/emj.2004.019646

Abstract
A short cut review was carried out to establish whether a reduced number of facial radiographs had acceptable clinical utility at detecting facial fractures after trauma. Altogether 614 papers were found using the reported search, of which five presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario
An 18 year old man has been assaulted and presents to the emergency department. He has a swollen, tender left zygoma and you would like to exclude an underlying fracture. The radiology department produce three views—the OM, OM30, and lateral. You wonder whether all three views are necessary to exclude a fracture.

Three part question
In a [patient with facial trauma] which [facial views] are necessary for [diagnosing facial fractures]?

Search strategy

Search outcome
Altogether 614 papers were found of which five were of some relevance to the clinical question. These five papers are shown in table 1.

Comment(s)
These studies vary in quality.

CLINICAL BOTTOM LINE
Requesting one OM view in the emergency department will save cost, time, and radiation, however the evidence to date suggests that the emergency doctor may miss an occasional midfacial fracture. At least two views should be taken.
<table>
<thead>
<tr>
<th>Author, date and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogers SN et al, 1995, UK</td>
<td>All patients referred for facial radiographs over a month. 60 of 65 standard OM views taken during one month, viewed by maxillofacial doctors, emergency doctors and radiology staff</td>
<td>Retrospective cohort. Missed fractures</td>
<td>One facial fracture was missed by the radiology consultant, 1/2 maxillofacial doctors, 3/3 emergency doctors and 2/2 PRHOs</td>
<td>Small number of radiographs with only 7 fractures total. In 6 of 65 cases, the gold standard used remained undecided whether a fracture existed</td>
<td></td>
</tr>
<tr>
<td>Sidebottom AJ et al, 1996, UK</td>
<td>137 patients referred for facial radiographs between Nov 1994 and Apr 1995. Emergency department SHOs opinion</td>
<td>Prospective cohort OM15 view only</td>
<td>Sensitivity 87.5%</td>
<td>Inherent bias in the study design. The same doctor was relied upon to truthfully comment on the OM15 view before looking at the two additional views. Blinding questionable. Insufficient information given as to how sensitivity and specificity worked out—calculations from the same data do not agree</td>
<td></td>
</tr>
<tr>
<td>Raby N and Moore D, 1998, UK</td>
<td>Facial radiographs of 50 patients with a facial fracture and 50 without. Films viewed by 3 radiology doctors, with and without the lateral views</td>
<td>Retrospective cohort Sensitivity for diagnosis of facial fracture</td>
<td>Sensitivity with and without lateral view remained 90%</td>
<td>Radiology doctors used in study, not emergency doctors. Gold standard not described</td>
<td></td>
</tr>
<tr>
<td>Sidebottom AJ and Lord TC, 1998, UK</td>
<td>All patients referred for facial radiographs over a year. All patients had only one OM15 view</td>
<td>Prospective cohort Patient referral to maxillofacial surgeon</td>
<td>130 referrals, 36 had midfacial fractures</td>
<td>No gold standard used—if a fracture was not spotted on single film, it would have been missed by the study. This makes for a fundamentally flawed study</td>
<td></td>
</tr>
<tr>
<td>McGhee A and Guse J, 2000, UK</td>
<td>Selection of facial radiographs for 44 patients with a fracture, and 49 patients without a fracture. Emergency doctors asked to report</td>
<td>Retrospective cohort Clinical utility for detection of fractures</td>
<td>OM15 films only Sensitivity 89.4% Specificity 82.1% OM 30 films only Sensitivity 88.6% Specificity 84.8% Both films together Sensitivity 90.9% Specificity 94.8% No statistical significance between values</td>
<td>Same cohort of doctors reported all three combinations of radiographs, which introduces bias</td>
<td></td>
</tr>
</tbody>
</table>
Low molecular weight heparin for intravenous drug users with deep vein thrombosis

Report by Michael Russell, Medical Student
Checked by Deborah Dawson, Clinical Research Nurse
doi: 10.1136/emj.2004.019653

Abstract
A short cut review was carried out to establish whether low molecular weight heparins were safer and more effective anticoagulants than coumarins in injecting drug users (IDUs) with deep venous thrombosis (DVT). Altogether 276 papers were found using the reported search, of which two presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario
A 26 year old IDU with proximal DVT caused by injecting into the groin is showing poor control of their INR (and poor compliance with blood testing) while being prescribed standard warfarin. You wonder if the patient would be better managed using subcutaneous injections of low molecular weight heparin (LMWH) to take away the need for monitoring.

Three part question
In [IV drug users with DVT] are [low molecular weight heparins better than coumarins] at [safe and effective anticoagulation]?

Search strategy
Medline 1966-07/04 and Journals@OVID using the OVID interface. [exp Substance abuse, intravenous OR intravenous drug use$ OR exp Substance-Related disorders OR exp Injections, intravenous OR drug abuse.mp OR exp Heroin Dependence OR exp Heroin OR heroin.mp OR illicit drug$.mp OR exp street drugs OR injecting drug use$.mp OR drug dependence.mp OR drug addiction.mp] AND [exp deep vein thrombosis OR deep vein thromb$.mp OR deep venous thromb$.mp OR DVT.mp] AND [exp Heparin OR Heparin.mp OR exp Heparin, Low molecular weight OR low molecular weight heparin.mp OR fractionated heparin.mp OR bemiparin.mp OR certoparin.mp OR dalteparin.mp OR enoxaparin.mp OR reviparin.mp OR tinzaparin.mp OR fragmin.mp OR clexane.mp OR exp warfarin OR warfarin.mp OR exp coumarins OR coumarins.mp] Limit to human AND English language.

Search outcome
Altogether 276 papers were identified of which 274 were irrelevant or insufficient quality for inclusion. The remaining two papers are shown in table 2.

Comment(s)
There is evidence that LMWHs are a safe and effective treatment for DVT. The drug is a recognised alternative to warfarin in certain patient groups such as pregnant women. Supervision of the INR with warfarin allows clinicians to monitor the effectiveness of the anticoagulant. With LMWHs there is no way of knowing if the patient is taking the drug, and as IDUs are traditionally seen as a chaotic patient group, then this would be a concern. There are no RCTs comparing LMWHs with coumarins in the management of intravenous drug users. Thus there is currently very limited evidence on the best ways to manage this patient group.

CLINICAL BOTTOM LINE
Low molecular weight heparin seems to be a safe method of anticoagulation and may be considered as an alternative to warfarin in the anticoagulation of IDUs because it does not require ongoing monitoring. However, the evidence is very limited. Local guidelines should be followed.

Two thumb compared with two finger cardiopulmonary resuscitation in infants

Report by Bruce Martin, Specialist Registrar
Checked by John Butler, Consultant
doi: 10.1136/emj.2004.019679

Abstract
A short cut review was carried out to establish whether the two thumb technique was superior to the two finger...

<p>| Table 2 |</p>
<table>
<thead>
<tr>
<th>Author, date and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>McKenzie AR et al, 2000, Scotland</td>
<td>20 consecutive IDUs presenting with iliofemoral DVT. LMWH given for median of seven weeks</td>
<td>Cohort, retrospective case reports</td>
<td>Incidence of recurrent DVT after three months. Incidence of symptomatic PE</td>
<td>8 patients asymptomatic, 7 persistent DVT. (1 declined treatment), 5 lost to follow up. None with PE after starting treatment.</td>
<td>Very small number of patients.</td>
</tr>
<tr>
<td>Lawson WL et al, 2003, Scotland</td>
<td>130 IDUs over 1 year presenting with DVT.</td>
<td>Cohort, retrospective audit</td>
<td>Incidence of recurrent DVT and symptomatic PE</td>
<td>Low rate of symptomatic PE</td>
<td>Small number of patients.</td>
</tr>
</tbody>
</table>

98% had at least one dose of LMWH
technique in delivering effective chest compressions in infants with cardiac arrest. Altogether 175 papers were found using the reported search, of which four presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario
You are put on standby by the paramedic emergency service for a cardiac arrest in an 8 week old baby. While you are assembling your equipment in the emergency department, you recall that APLS suggests a two thumb, hand encircling technique may be better when more than one rescuer is present, but rarely do you see this being used. You wonder whether current evidence supports this or not.

Three part question
In [infants in cardiac arrest] is [two thumb CPR better than two finger CPR] at [delivering effective chest compressions]?

Search strategy
Medline 1966-07/04 using the OVID interface. [{(exp Cardiopulmonary Resuscitation OR exp Heart Arrest/ OR cardiopulmonary resuscitation.mp OR heart arrest.mp OR CPR.mp) AND (chest compression$.mp OR exp Heart Massage)} OR cardiac compression$.mp] AND (BestBETs paediatric search filter) LIMIT to English language.

Search outcome
Altogether 175 papers found of which four helped to answer the question posed. These are summarised in table 3.

Comment(s)
In addition to these papers, the International Consensus on Science published revised guidelines in 2000, which, among other things advocated the use of two thumb technique where possible. Whether this leads to improvement in overall survival rates needs further evaluation.
Non-steroidal anti-inflammatory drugs and exacerbations of asthma in children

Report by Richard Body, Senior House Office
Checked by Katherine Potier, Specialist Registrar
doi: 10.1136/emj.2004.019687

Abstract

A short cut review was carried out to establish whether non-steroidal anti-inflammatory agents cause exacerbations of asthma in children. Altogether 301 papers were found of which 299 did not answer the study question. The remaining two are summarised in table 4.

Comment(s)

Non-steroidal anti-inflammatory medications (NSAIDs) are often withheld from asthmatic children for fear that they may cause an exacerbation of the condition. Although aspirin induced bronchospasm has been described in the literature, there are no case reports relating to NSAID induced bronchospasm in children. The two clinical trials that have investigated this problem have not established any link. The paper by Lesko et al actually showed a statistically significant reduction in outpatient consultations for asthma in the

### Table 4

<table>
<thead>
<tr>
<th>Author, date and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short JA et al, 2000, UK</td>
<td>70 children aged 6–15 years with a diagnosis of asthma, recruited from a hospital respiratory clinic or at presentation for day case surgery. All patients given 1–1.5 mg/kg orally diclofenac after baseline spirometry and after filling a questionnaire detailing the severity of their asthma</td>
<td>Clinical trial</td>
<td>Change in PEFR or FEV,&lt;sub&gt;1&lt;/sub&gt; at 10, 20, and 30 minutes after diclofenac</td>
<td>No patient showed decrease &gt;1.5% in PEFR or FEV,&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Uncontrolled, no healthy volunteers to compare with specific population. No sample size analysis; sample size of 70 seems small. 1.5% reduction in PEFR or FEV,&lt;sub&gt;1&lt;/sub&gt; considered significant but no explanation offered as to why this figure was chosen</td>
</tr>
<tr>
<td>Lesko SM et al, 2002, UK</td>
<td>1879 febrile children (aged 6 months to 12 years) receiving asthma medications randomised to receive either paracetamol 12 mg/kg, ibuprofen 5 mg/kg or ibuprofen 10 mg/kg</td>
<td>Prospective randomised double-blind controlled trial</td>
<td>Hospitalisation rates for asthma over four weeks. Outpatient visits for asthma over four weeks</td>
<td>Relative risk for hospitalisation in ibuprofen group of 0.63 (95% confidence intervals 0.25 to 1.6) 18 admitted. Relative risk in ibuprofen group 0.56 (95% confidence intervals 0.34 to 0.95) 69 patients</td>
<td>Original study was not designed to look at these outcomes. No objective measure of pulmonary function—follow up by case note review and parental questionnaire. Wide confidence intervals for first outcome. No power calculations. No details of randomisation process</td>
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</tbody>
</table>
ibuprofen treated group. This may have been a chance result. Alternatively, it may be that either paracetamol can induce bronchospasm or that NSAIDs lead to an improvement in bronchial tone, perhaps as a result of their anti-inflammatory action. A third paper, by Lesko and Mitchell, investigated the safety of ibuprofen and paracetamol in children under two years of age. Although the paper did not answer the three part question directly, they randomised a total of 27 065 febrile children to receive either paracetamol, ibuprofen 5 mg/kg, or ibuprofen 10 mg/kg. There was no increase in the incidence of hospitalisation with asthma or anaphylaxis in the ibuprofen treated group. From the available evidence, it would seem that NSAIDs are safe to use in asthmatic children.

**CLINICAL BOTTOM LINE**

There is no evidence that NSAIDs lead to exacerbation of asthma in children.

**Thrombotic complications of a femoral central venous catheter**

**Report by Joel Desmond, Research Fellow**

**Checked by Stewart Teece, Clinical Research Fellow**

**Abstract**

A short cut review was carried out to establish whether the insertion of a femoral central venous pressure line causes more thrombotic complications than insertion of a jugular line. Altogether 90 papers were found using the reported search, of which eight presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant

<table>
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<th>Table 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author, date and country</strong></td>
</tr>
<tr>
<td>Kanter RK et al, 1986, USA,</td>
</tr>
<tr>
<td>Trottier SJ et al, 1995, France</td>
</tr>
<tr>
<td>Shefler A et al, 1995, Australia</td>
</tr>
<tr>
<td>Durbec O et al, 1997, France</td>
</tr>
<tr>
<td>Durbec O et al, 1997, France</td>
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</tbody>
</table>


outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario
You are in the emergency department attending to a 68 year old man who was found in his car that had left the road and hit a tree. On arrival his GCS was 6 and he had two fractured clavicles and an open fracture of the left humerus. His BP is 90/50 and his pulse is 110 and after stabilisation you call an anaesthetist to intubate him, with cervical collar in situ.

Three part question
In [patients requiring central venous pressure monitoring] does the insertion of [a femoral central line as compared with an internal jugular or subclavian line] increase [the rate of thrombotic complications]?

Search strategy
Medline 1966-07/04 using the OVID interface. [(exp femoral vein OR femoral vein.mp) AND (exp catheterisation, central venous OR exp catheterisation OR catheterisation.mp) AND (exp thrombosis OR thrombosis.mp OR exp venous thrombosis)] AND maximally sensitive RCT filter.

Search outcome
Altogether 90 papers were found of which seven were relevant. A further paper was found by cross referencing. These papers are shown in table 5.

Comment(s)
All studies found evidence of thrombosis after femoral central line insertion. Rates ranged from a 2% rate of DVTs seen clinically by Timits et al in a study that did not specifically look for evidence of a DVT, to 21% detection of thrombus by US by Joynt et al, a 34% rate of thrombus detection on phlebography by Durbec et al. Of note Joynt et al found an 8% rate of iliofemoral DVTs, but two DVTs were also seen in contralateral, uncannulated legs. All studies detect high rates of lower limb thromboses and therefore extreme caution should be used when deciding to insert a femoral central line. If a femoral line is deemed necessary attention should be paid to gaining access elsewhere at the earliest possible opportunity.

<table>
<thead>
<tr>
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<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timits JF et al, 1999, France</td>
<td>336 patients in three intensive care units</td>
<td>PRCT</td>
<td>Time for insertion</td>
<td>15 min for non-tunnelled line and 25 min for tunnelled line</td>
<td>92% were ventilated</td>
</tr>
<tr>
<td></td>
<td>Randomly assigned to tunnelled or non-tunnelled femoral venous catheter 10 cm tunnel was used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joynt GM et al, 2000, Hong Kong</td>
<td>140 patients in an intensive care unit, all receiving a femoral line</td>
<td>Cohort study</td>
<td>Thrombotic complications</td>
<td>12 iliofemoral DVTs found in cannulated leg 2 found in uncannulated leg</td>
<td>No control group to compare the types of complication found with subclavian line, for example, pneumothorax, but otherwise a well conducted study</td>
</tr>
<tr>
<td></td>
<td>Duplex ultrasound performed before insertion, 12 hours after insertion, and then daily until removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merrer J et al, 2001, France</td>
<td>289 adult patients in eight intensive care units receiving first central line</td>
<td>PRCT</td>
<td>Thrombotic complications</td>
<td>USS detected Femoral 21.5% Subclavian 1.9%, p&lt;0.01</td>
<td>Thrombotic complications only assessed in 76% of patients, (but reasons for all of these were accounted for)</td>
</tr>
<tr>
<td></td>
<td>Randomly assigned to femoral insertion (n = 145) or subclavian insertion (n = 144)</td>
<td></td>
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</tr>
</tbody>
</table>

Table 5 Continued

<table>
<thead>
<tr>
<th>PRCT Thrombotic complications</th>
<th>Thrombotic complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major thrombosis: femoral 6%, subclavian 0%</td>
<td>Otherwise well conducted study</td>
</tr>
</tbody>
</table>

CLINICAL BOTTOM LINE
Central lines inserted into the femoral vein have an unacceptably high rate of thrombotic complications and efforts to minimise the use of this route of access should be taken.
Suicide at Christmas
Report by Simon Carley, Consultant
Checked by Mark Hamilton, Emergency Physician
doi: 10.1136/emj.2004.019703

Abstract
A short cut review was carried out to establish whether the risk of suicide and parasuicide increases at Christmas. Fifteen papers were found using the reported search, of which six presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario
You are planning for winter pressures in your emergency department. You wonder if you will need additional psychiatric support over the Christmas period to cope with a perceived increase in the number of suicide attempts. When you bring this up at a senior team meeting a colleague suggests that in fact the number of suicides decreases over the Christmas period. You wonder if this is true.

### Table 6

<table>
<thead>
<tr>
<th>Author, date and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillips SP and Wills JS, 1987, US</td>
<td>Suicides in the US from 1973–1979 (188,047 suicides included in database)</td>
<td>Retrospective database analysis</td>
<td>Rates at Christmas</td>
<td>Fewer (up to 15%) suicides before Christmas (p &lt; 0.05)</td>
<td></td>
</tr>
<tr>
<td>Masterton G, 1991, UK</td>
<td>All parasuicide admissions between January 1969 and December 1987 involving people in Edinburgh. Aged ≥16. 22169 admissions were included</td>
<td>Retrospective database analysis</td>
<td>Parasuicide incidence at Christmas in women</td>
<td>About 20% decrease in rates for the 4 weeks from 4 Dec until 1 Jan. This was followed by an 11% increase in the first week of the New Year. (comparisons made with average rate over year)</td>
<td>Only one centre. Only admitted patients. Long time span of study may result in a number of confounding factors (for example, need for admission)</td>
</tr>
<tr>
<td>Cullum SJ et al, 1993, UK</td>
<td>Cases of deliberate self harm presenting to three EDs in London. Rates on Christmas day were compared with rates on 7 Feb and 15 Aug</td>
<td>Retrospective database analysis</td>
<td>Total cases on Christmas day over 7 years</td>
<td>12 cases 25 cases 25 cases</td>
<td>Although a statistical difference was found (p &lt; 0.05) these are still small numbers. There is no account for the effect on incidence on days before and after Christmas as seen in other papers</td>
</tr>
<tr>
<td>Jessen G and Jensen BF, 1999, Denmark</td>
<td>Database of suicides between 1970 and 1994 (32291 suicides included)</td>
<td>Retrospective database analysis</td>
<td>Incidence of suicide at Christmas</td>
<td>Decreased in week around Christmas. 30% less than expected on Christmas Eve. 20% less than expected on Christmas day. 6% less than expected</td>
<td></td>
</tr>
<tr>
<td>Jessen G et al, 1999, Multicentre WHO study</td>
<td>24388 suicide attempts in patients over 15 years between 1989–1996. Data from 13 European centres. Holidays around Christmas and New Year (20 Dec to 6 Jan)</td>
<td>Cohort</td>
<td>Before Christmas</td>
<td>Statistically fewer attempts on the 20, 21, and 23 Dec After Christmas</td>
<td>Data collection may suffer during public holidays. This study only examined suicide attempts rather than deaths that reached health service care</td>
</tr>
<tr>
<td>Ajdacic-Gross V et al, 2003, Switzerland</td>
<td>Swiss mortality data from 1969–1994 (37158 suicides included in database)</td>
<td>Retrospective database analysis</td>
<td>Suicide rates in December</td>
<td>10% less than average for year</td>
<td></td>
</tr>
</tbody>
</table>

**Dates with lowest rates of suicide:**
23, 25, and 30 Dec
Three part question
[In patients at risk of suicide/parasuicide] is [Christmas] a [high risk period]?

Search strategy
Medline(R) In-Process, Other Non-Indexed Citations, Medline 1966-07/2004 using the Ovid interface. [christmas.mp] AND [suicide.mp OR exp suicide OR exp suicide, attempted OR parasuicide.mp].

Search outcome
Altogether 15 papers were found of which six were relevant to the clinical question. These papers are shown in table 6.

Comment(s)
Although the papers presented show a mix of suicide and parasuicide statistics it is apparent that there is a general trend for such events to reduce in December and in particular around the days preceding Christmas day. As with all studies in this area there may be difficulties in gauging the true incidence as a result of under reporting. This is unlikely to be significantly different at Christmas so overall trends should be valid. The perception of many is that rates go up around Christmas. This has resulted in a greater awareness and access to services at this time. It is an interesting question to ponder whether the reductions seen here are attributable to an overall reduction in need, or the effectiveness of available help services.

► CLINICAL BOTTOM LINE
Suicide and parasuicide rates go down around Christmas.


VOLUME 21 REVIEWERS ........................................................................................................

The journal would not function without the time and effort given by our reviewers. The editorial team are immensely grateful for the enormous amount of work and thought given to reviews. We publish this list of our most active reviewers over the past year, a full list would be too long to print!

Thanks to all who review for the EMJ, you are the unsung heroes of the journal and we hope we can count on your continued support in the future.

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Bill Bailey
Ian Swann
Carole M Gavin
Steve Goodacre
Thomas Clarke
Simon F J Clarke
Simon Carley
Sharon Blanckley
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Chris Maimaris
Suzanne M Mason
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